

**RAPPORT D'ESSAI - TEST REPORT
COLLISION FRONTALE DE RECHERCHE
(FACE DÉFORMABLE)
RESEARCH FRONTAL IMPACT
(DEFORMABLE FACE)**

VÉHICULE D'ESSAI / TEST VEHICLE SUZUKI GRAND VITARA 2005 TC # 05-244

**ESSAIS DE RECHERCHE CONJOINTS TC/NHTSA SUR LES
SACS GONFLABLES FRONTAUX
JOINT TC/NHTSA FRONTAL AIRBAGS RESEARCH TESTS**

Préparé par :
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N° de contrat : **06-6008**
Rapport N°: **RR06-144**

Pour :
TRANSPORTS CANADA
SÉCURITÉ ET SÛRETÉ
Programmes de sécurité routière
Recherche et essais de véhicules
Ottawa (Ontario)

Prepared by :
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TEST AND RESEARCH CENTRE
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SAFETY AND SECURITY
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Vehicle Testing
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Les résultats des essais figurant dans ce compte-rendu ne représentent pas une décision officielle du Ministère des Transports quant à l'acceptation de la performance sécuritaire, de la consommation de carburant ou de la conformité d'un véhicule ou des composantes d'un véhicule aux normes de sécurité et d'antipollution. Le Ministère des Transports ne certifie, n'approuve ou n'endosse aucun produit de véhicule automobile.

The test results presented herein do not, in themselves, represent an official determination by the Department of Transport with fuel consumption or compliance with safety and emission standards of any motor vehicle or motor vehicle component. The Department of Transport does not certify, approve or endorse any motor vehicle product.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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VÉHICULE D'ESSAI - TEST VEHICLE

Fabricant - Manufacturer SUZUKI MOTOR CORPORATION JAPAN	Type de carrosserie - Body Style Hayon 5P / 5D Hatchback	Marque, modèle, Année - Make, model, Year SUZUKI GRAND VITARA 2005
Classe de véhicule - Class of vehicle VTUM / MPV	Boîte de vitesse - Transmission Type Automatique 4R / Automatic 4W	Moteur - Engine V6 en ligne avant / V6 inline front
Date de fabrication - Date of Manufacture 02/05	Cylindres - Cylinders 2.5 Lit.	N° d'ident. du véhicule - Vehicle Ident. No. JS3TD62V554202167
Lecture de l'odomètre - Odometer Reading 21 km	Nombre de places assises désignées Number of Designated Seating Positions 5	Numéro d'ident. PMG - PMG Ident. Number UN6-216
PNBV - GVWR 1870 kg	PNBE (Avant) - GAWR (Front) 900 kg	PNBE (Arrière) - GAWR (Rear) 1060 kg

CONFIGURATION D'ESSAI - TEST CONFIGURATION

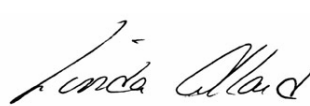
Type d'essai - Test type Véh. vs barrière avec Face Déformable TRL Veh. vs barrier with TRL Deformable Face	Vitesse d'impact - Impact velocity		Angle d'impact Impact angle	Masse du véhicule d'essai Test vehicle mass
	Prévu / Intended : 40.0 km/h	Obtenu / Obtained : 40.3 km/h	0 °	1774.0 kg
Description et position du mannequin (conducteur) Dummy description and position (driver) Description Hybrid III (5 %)	Position ** 0 mm	Description et position du mannequin (passager avant) Dummy description and position (front passenger) Description Hybrid III (5 %)	Position ** 0 mm	
Description et position du mannequin (passager arrière gauche) Dummy description and position (left rear passenger) Description Hybrid III (5 %)	Position ** N/A	Description et position du mannequin (passager arrière droit) Dummy description and position (right rear passenger) Description Hybrid III (5 %)	Position ** N/A	

RÉSULTATS GÉNÉRAUX - GENERAL RESULTS

Déploiement des sacs gonflables - Airbags deployment Coussins frontaux - Frontal airbags		Déploiement des sacs gonflables - Airbags deployment Coussins latéraux - Lateral airbags	
Conducteur / Driver	Passager / Passenger	Conducteur / Driver	Passager / Passenger
Déployé / Deployed 35.4ms	Déployé / Deployed 35.6ms	N/A	N/A
Rétrotracteurs de ceintures-prétensionneurs Seat belts retractors-pretensioners		Limiteur de charge des ceintures de sécurité Seat belts load limiter	
Conducteur / Driver	Passager / Passenger	Conducteur / Driver	Passager / Passenger
Déployé / Deployed	Déployé / Deployed	Non-équipé / Not equipped	Non-équipé / Not equipped

Essai réalisé selon la procédure de PMG : Collision frontale de recherche, version 3, révision 10 avril 2000.

Test performed according to PMG procedure: Research frontal impact, version 3, revised april 10, 2000.

Préparé par : Prepared by : 	Digitally signed by Pierre Beauchamp Date: 2005.11.30	Approuvé par : Approved by :	
Vérifié par : Verified by : 	Digitally signed by Linda Allard Date: 2005.11.30	Accepté par : Accepted by :	

* Tel qu'observé avec l'application d'une charge de 12V après l'essai.

* As observed by a 12V application after the test.

** Référence : 0 est la position la plus avancée. / ** Reference : 0 is the foremost position.

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DONNÉES DU VÉHICULE D'ESSAI / TEST VEHICLE DATA

Capacité du véhicule - Vehicle Capacity		Masse des bagages - Cargo Load		Type de sièges – Type of seats			Types de dossiers - Type of seat back				
400 kg					Avt - Frt	Arr - Rr		Avt - Frt	Arr - Rr		
Nombre d'occupants (places assises désignées) Number of Occupants (Designated Seating Positions)				Banquette Bench			Dossier ajustable Adjustable Seat Back	X			
Avant – Front 2		Arrière – Rear 3		Total 5		Baquet Bucket	X	X	Dossier non-ajustable Non-adjustable Seat Back		X
Volume de carburant pour l'essai Fuel system test volume		Pression à froid - Cold Tire Pressure					Dimension - Size				
58.24 l		Avant - Front 180 kPa		Arrière - Rear 180 kPa		Secours - Spare N/A		P235/60R16			

PREMIÈRE PESÉE : VÉHICULE TEL QUE LIVRÉ (AVEC LIQUIDES AU MAXIMUM)

FIRST WEIGHT : VEHICLE AS RECEIVED (WITH MAXIMUM FLUIDS)

Avant gauche - Left front	399.2 kg	Avant droit - Right front	412.8 kg	Masse avant totale - Total front weight	812.0 kg
Arrière gauche - Left rear	348.4 kg	Arrière droit - Right rear	351.5 kg	Masse arrière totale - Total rear weight	699.9 kg
Masse totale côté gauche - Total left side weight	747.6 kg	Masse totale côté droit - Total right side weight	764.3 kg	Masse totale - Total weight	1511.9 kg

TROISIÈME PESÉE : VÉHICULE PRÊT POUR L'ESSAI

THIRD WEIGHT : VEHICLE READY FOR TEST

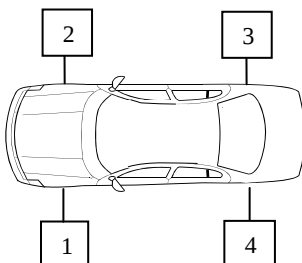
Avant gauche - Left front	433.6 kg	Avant droit - Right front	447.8 kg	Masse avant totale - Total front weight	881.4 kg
Arrière gauche - Left rear	446.8 kg	Arrière droit - Right rear	445.8 kg	Masse arrière totale - Total rear weight	892.6 kg
Masse totale côté gauche - Total left side weight	880.4 kg	Masse totale côté droit - Total right side weight	893.6 kg	Masse totale - Total weight	1774.0 kg

ATTITUDE DU VÉHICULE / VEHICLE ATTITUDE

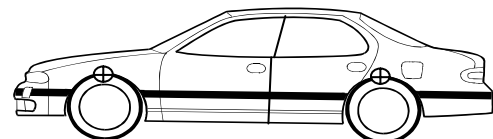
		Attitude tel que livré Attitude on delivery	Attitude tel que testé Attitude as tested
1	Roue avant gauche* Left front wheel*	786 mm	770 mm
2	Roue avant droite* Front right wheel*	774 mm	770 mm
3	Roue arrière droite* Rear right wheel*	777 mm	745 mm
4	Roue arrière gauche* Rear left wheel*	784 mm	745 mm

* Mesures prises aux puits de roues. // *Measurements taken at wheel openings.

Vue de plan / Plan view



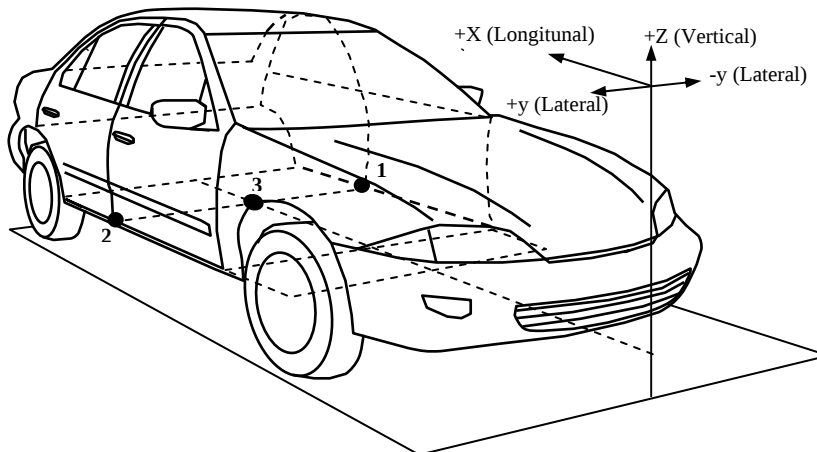
Vue de côté / Side view



⊕ Points de mesure / Measurement points

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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EMPLACEMENT DES ACCÉLÉROMÈTRES
ACCELEROMETER LOCATIONS

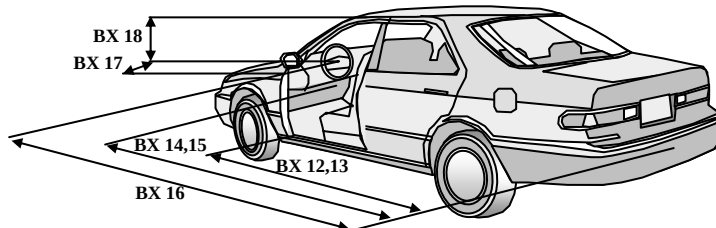
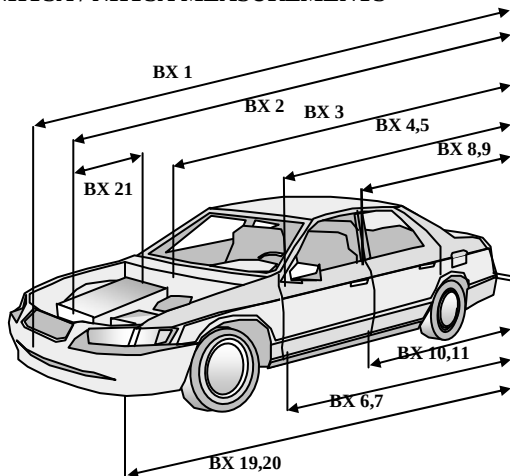


Point de référence : Centre transversal du véhicule, au point le plus avancé, au niveau du sol. Selon SAE J182a.
Reference point : Transversal center of the vehicle, at the foremost point and at ground level. As per SAE J182a.

EMPLACEMENT LOCATION	DESCRIPTIONS	COORDONNÉES / COORDINATES (mm)		
		X	Y	Z
#1	Seuil de la porte gauche @ pilier "B" Left door sill @ pillar "B"	2321	-619	387
#2	Seuil de la porte droite @ pilier "B" Right door sill @ pillar "B"	2330	623	389
#3	Centre de gravité Centre of gravity	2488	-15	515

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MESURES NHTSA / NHTSA MEASUREMENTS



- 1 - Longueur totale du véhicule
Total length of vehicle
- 2 - Surface arrière à l'avant du bloc moteur
Rear surface at front of engine block
- 3 - Surface arrière à la cloison pare-feu
Rear surface at fire-wall
- 4 - Surface arrière à la partie supérieure avant porte avant droite
Rear surface of front superior part of right front door
- 5 - Surface arrière à la partie supérieure avant porte avant gauche
Rear surface of front superior part of left front door
- 6 - Surface arrière à la partie inférieure avant porte avant droite
Rear surface of front inferior part of right front door
- 7 - Surface arrière à la partie inférieure avant porte avant gauche
Rear surface of front inferior part of left front door
- 8 - Surface arrière à la partie supérieure arrière porte avant droite
Rear surface of rear superior part of right rear door
- 9 - Surface arrière à la partie supérieure arrière porte avant gauche
Rear surface of rear superior part of left rear door
- 10 - Surface arrière à la partie inférieure arrière porte avant droite
Rear surface of rear inferior part of right rear door
- 11 - Surface arrière à la partie inférieure arrière porte avant gauche
Rear surface of rear inferior part of left rear door
- 12 - Surface arrière à la partie inférieure du pilier "A" droit
Rear surface of rear inferior part of right pillar "A"
- 13 - Surface arrière à la partie inférieure du pilier "A" gauche
Rear surface of rear inferior part of left pillar "A"
- 14 - Surface arrière à la cloison pare-feu côté droit
Rear surface of right side of fire-wall
- 15 - Surface arrière à la cloison pare-feu côté gauche
Rear surface of left side of fire-wall
- 16 - Surface arrière à la colonne de direction
Rear surface of steering column
- 17 - Centre de la colonne de direction au pilier "A"
Centre of steering column to pillar "A"
- 18 - Centre de la colonne de direction au toit
Centre of steering column to roof
- 19 - Surface arrière du véhicule au coin droit du pare-choc avant
Rear surface of vehicle to right corner of front bumper
- 20 - Surface arrière du véhicule au coin gauche du pare-choc avant
Rear surface of vehicle to left corner of front bumper
- 21 - Longueur du bloc moteur
Length of engine block

	BX*	AX**	Δx		BX*	AX**	Δx
1	4178	3866	312	12	2845	2833	12
2	3561	3473	88	13	2845	2824	21
3	3098	3071	27	14	3025	3019	6
4	2867	2860	7	15	3071	3049	22
5	2862	2840	22	16	2406	2424	-18
6	2882	2877	5	17	376	371	5
7	2882	2871	11	18	492	499	-7
8	1867	1860	7	19	4150	3932	218
9	1859	1838	21	20	4144	3944	200
10	1877	1874	3	21	365	362	3
11	1869	1860	9				

Mesures en mm / Measurements in mm

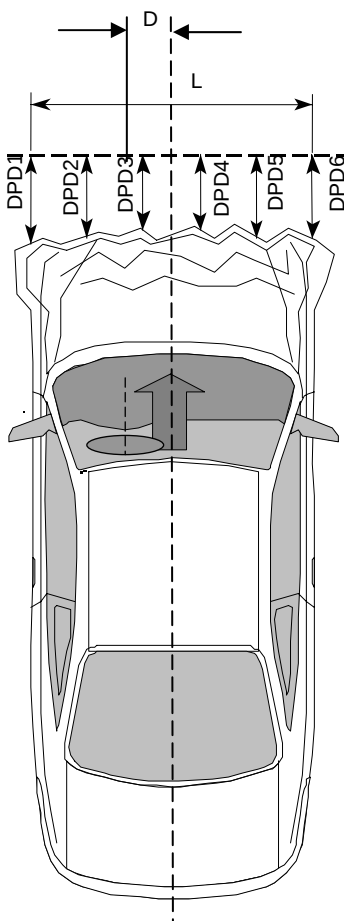
* BX : Mesures du véhicule avant-essai. / Pre-test vehicle measurements data.

** AX : Mesures du véhicule après-essai. / Post-test vehicle measurements data.

REMARQUES / COMMENTS : Aucune / None

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MESURES DES DPD / DPD'S MEASUREMENTS



DPD 1:

DPD 2:

DPD 3:

DPD 4:

DPD 5:

DPD 6:

MESURE L:

MEASUREMENT L:

MESURE D:

MEASUREMENT D:

AVANT ESSAI PRE-TEST	APRÈS ESSAI POST-TEST	Δx
139	514	-375
39	297	-258
2	363	-361
-1	352	-353
35	297	-262
134	511	-377
	1500	
	0	

Mesures en mm / Measurements in mm

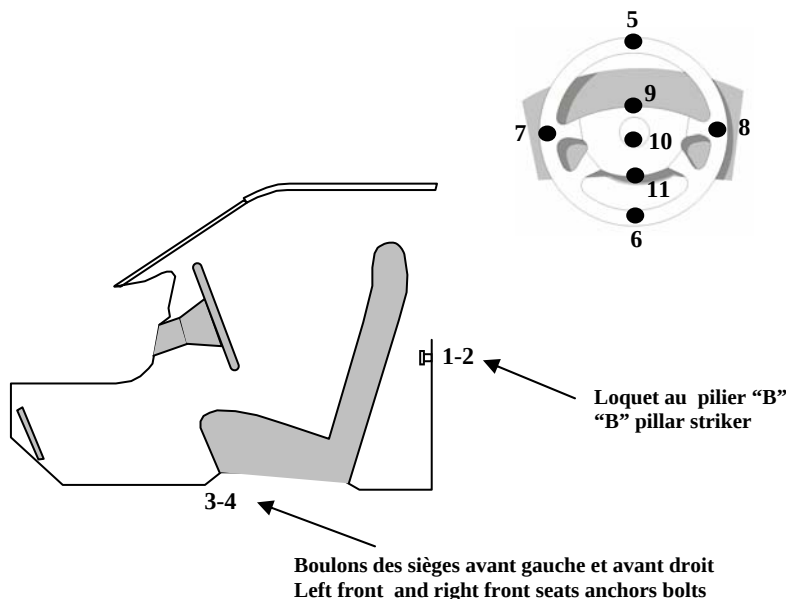
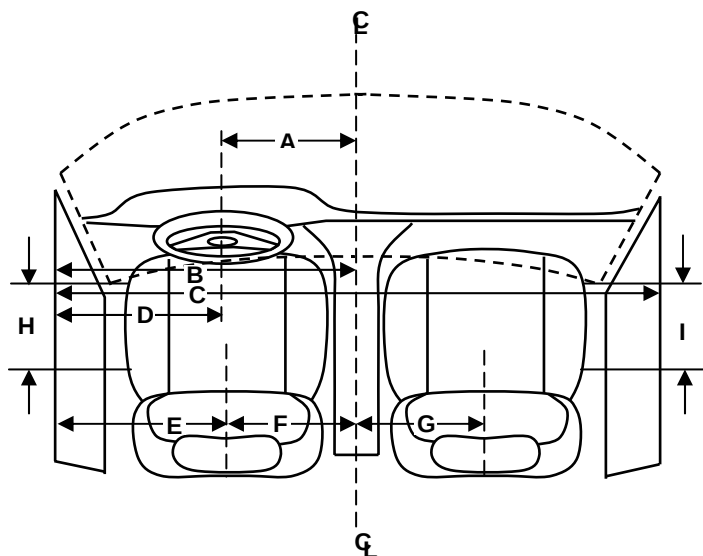
L : Longueur de la région endommagée
Length of damaged region

D : Distance du centre de déformation à la ligne de centre du véhicule
Midpoint of damage to Vehicle Longitudinal Centerline

REMARQUES / COMMENTS : Aucune / None

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MESURES DE VÉHICULE
VEHICLE MEASUREMENTS



Code	Description	mm
A	Centre du volant à la ligne de centre du véhicule Steering wheel center to center line of vehicle	347
B	Seuil de fenêtre à la ligne de centre du véhicule Window edge to center line of the vehicle	760
C	Fenêtre à fenêtre Window to window	1526
D	Centre du volant au seuil de la fenêtre Steering wheel center to window edge	413
E	Seuil de la fenêtre au centre du siège (conducteur) Window edge to seat midline (driver)	403
F	Centre du siège à la ligne de centre du véhicule (conducteur) Seat midline to center line of vehicle (driver)	357
G	Centre du siège à la ligne de centre du véhicule (passager) Seat midline to center line of vehicle (passenger)	362
H	Course du siège (conducteur) Seat travel (driver)	196
I	Course du siège (passager) Seat travel (passenger)	196
J	Ajustement du volant Steering wheel adjustment	78
K	Ajustement de la ceinture baudrier Upper torso belt adjustment	66

Code	Description	X(mm)	Y(mm)	Z(mm)
1	Loquet au pilier "B" (conducteur) "B" pillar striker (driver)	2273	-743	735
2	Loquet au pilier "B" (passager) "B" pillar striker (passenger)	2271	748	736
3	Boulon siège avant, extérieur (conducteur) Front seat bolt, outboard (driver)	1779	-556	385
4	Boulon siège avant, extérieur (passager) Front seat bolt, outboard (passenger)	1777	559	386
5	Jante du volant, centre haut Steering wheel rim, top centre	1682	-347	1216
6	Jante du volant, centre bas Steering wheel rim, bottom centre	1848	-348	880
7	Jante du volant, centre gauche Steering wheel rim, left centre	1761	-536	1048
8	Jante du volant, centre droit Steering wheel rim, right centre	1767	-162	1048
9	Moyeu du volant, centre haut Steering wheel hub, top centre	1738	-347	1085
10	Moyeu du volant, centre Steering wheel hub, centre	1783	-348	1029
11	Moyeu du volant, centre bas Steering wheel hub, bottom centre	1804	-347	974
12	Centre du volant Center of steering wheel	1772	-347	1046

Point de référence : Centre transversal du véhicule, au point le plus avancé, au niveau du sol. Selon SAE J182a.
Reference point : Transversal center of the vehicle, at the foremost point and at ground level. As per SAE J182a.

Remarques - Comments: Aucune / None

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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POSITIONNEMENT DES MANNEQUINS / MEASUREMENTS OF DUMMY POSITIONS

		<u>MESURES / MEASUREMENTS :</u>					
Conducteur/Driver :							

Remarques – Comments : Aucune / None

*** Référence : 0 est la position la plus avancée.**

*** Reference : 0 is the foremost position.**

Selon la procédure de positionnement de mannequin 5^e percentile Hybrid III, conformément à la sous-section O, TP208-12, 14 janvier 2003.

As per procedure for placement of a 5th percentile Hybrid III, conforming to subpart O, TP208-12, January 14th 2003.

Point de référence : Centre transversal du véhicule, au point le plus avancé, au niveau du sol. Selon SAE J182a.

Reference point : Transversal center of the vehicle, at the foremost point and at ground level. As per SAE J182a.

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POSITIONNEMENT DES MANNEQUINS / MEASUREMENTS OF DUMMY POSITIONS

2 ^{ème} Rangée / 2 nd row		MESURES / MEASUREMENTS :					
Passager gauche/Left Passenger: Hybrid III (5 %) #111		Toutes les mesures sont en mm / All measurements are in mm					
Angle du pelvis - Pelvic angle :							

Remarques – Comments : **Aucune / None**

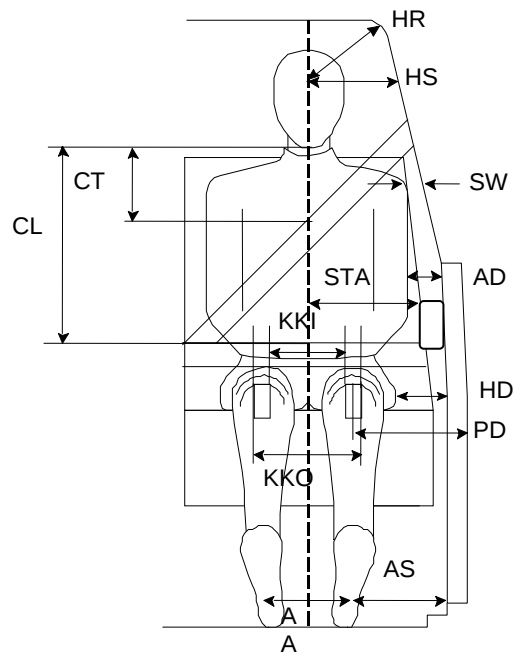
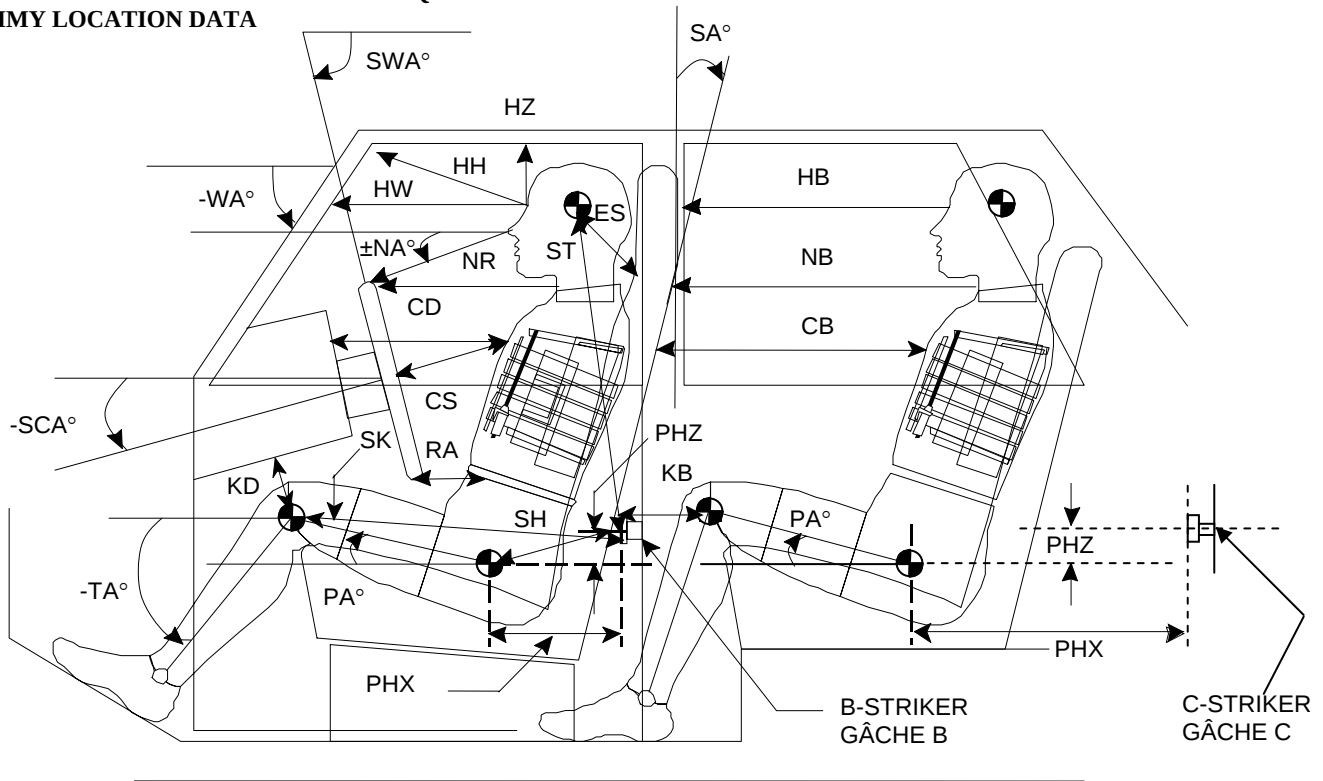
Selon la procédure de positionnement de mannequin 5^e percentile Hybrid III, conformément à la sous-section O, TP208-12, 14 janvier 2003.

As per procedure for placement of a 5th percentile Hybrid III, conforming to subpart O, TP208-12, January 14th 2003.

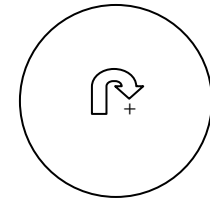
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COTES DE LOCALISATION DES MANNEQUINS
DUMMY LOCATION DATA



référence
reference :



Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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COTES DE LOCALISATION DES MANNEQUINS (suite)
DUMMY LOCATION DATA (continued)

(Mesures prises en mm / Measurements taken in mm)

DESCRIPTION	CODE	CONDUCTEUR DRIVER	PASSAGER Av. F. PASSENGER	PASSAGER Arr.G. L.R. PASSENGER	PASSAGER Arr.D. R.R. PASSENGER
De cheville à cheville (boulon extérieur) Ankle to ankle (exterior bolt)	AA	280	270		
Genou à genou (plaque) Intérieur / Interior Centre / Center Knee to knee (plate) Extérieur / Extérieur	KKI	130	100		
	KKC	200	170		
	KKO	270	240		
De la cheville jusqu'au seuil de porte (horizontalement) Ankle to door sill (horizontal)	AS	175	200		
Centre du genou au tableau de bord ou siège horizontalement (minimum) Knees centre to dash or seat back horizontal (minimum)	KDL	40	50		
	KDR	50	55		
Sternum au tableau de bord (horizontalement) Chest to dash (horizontal)	CD		440		
Milieu du sternum au centre du moyeu du volant ou siège avant Mid sternum to steering hub center or front seat	CS/CB	260			
Milieu du front jusqu'au pare-brise (horizontalement) Mid forehead to windshield (horizontal)	HW	696	685		
Milieu du front jusqu'au haut du pare-brise Mid forehead to windshield header	HH	431	426		
Nez à la jante du volant de direction (haut) ou siège avant Nose to steering wheel rim (top) or front seat	NR/HB	345			
Milieu du front jusqu'au début du toit Mid forehead to edge roof	HR	295	295		
Haut de l'oreille au haut du siège avant Ear top to front seat top	ES	275	267		
Menton au haut de la ceinture sous-abdominale (verticalement) Chin to lap belt upper edge (vertical)	CL	345	350		
Menton au haut de la ceinture baudrier (verticalement) Chin to thorax belt upper edge (vertical)	CT	105	100		
Milieu du front à la fenêtre latérale (horizontalement) Mid forehead to side window (horizontal)	HS	298	345		
La rotule à la porte (horizontalement) Patella to door (horizontal)	PD	189	187		
Du point-H à la porte (horizontalement) H-point to door (horizontal)	HD	140	145		
Du milieu du bras à la porte (horizontalement) Mid upper arm to door (horizontal)	AD	95	160		
Cou jusqu'au volant ou tableau de bord (horizontalement) ou siège avant Neck to steering wheel or dash board (horizontal) or front seat	NB	440	580		
Épaule à la fenêtre de côté Shoulder to side window	SW	124	145		
Abdomen à l'appui-bras Abdomen to armrest	STA	150	160		
Milieu du front au toit (verticalement) Mid forehead to roof (vertical)	HZ	345	340		
Tête au loquet (plan (x,z)) Striker to head ((x,z) plan)	ST	516	525		
Abdomen à la jante du volant de direction (bas) Steering wheel rim to abdomen (bottom)	RA	140			
Genou au loquet (plan (x,z)) Striker to knee ((x,z) plan)	SK	608	604		
Point-H au loquet (plan (x,z)) Striker to H-Point ((x,z) plan)	SH	288	284		
Point-H au loquet en X (horizontalement) Striker to H-Point in X (horizontal)	PHX	281	274		
Point-H au loquet en Z (verticalement) Striker to H-Point in Z (vertical)	PHZ	63	73		

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COTES DE LOCALISATION DES MANNEQUINS (suite)

DUMMY LOCATION DATA (continued)

(Mesures prises en deg. / Measurements taken in deg.)

DESCRIPTION	CODE	CONDUCTEUR DRIVER	PASSAGER Av. F. PASSENGER	PASSAGER Arr.G. L.R. PASSENGER	PASSAGER Arr.D. R.R. PASSENGER
Angle du volant Steering wheel angle	+SWA	62.5°			
Angle du pare-brise Windshield angle	-WA	-25.1°			
Angle de la colonne de direction Steering column angle	-SCA	-35.6°			
Angle du tibia gauche Left tibial angle	-TA	-24.3°	-29.8°		
Angle du tibia droit Right tibial angle	-TA	-28.6°	-29.0°		
Angle pelvis Pelvic angle	+PA	22.2°	22.1°		
Angle du nez à la jante de direction (haut) Nose to steering wheel rim (top) angle	±NA	0.4°			
Angle du dossier (Tige d'Appuie-tête) Seat back angle (Headrest Pole)	+SA	18.8°	19.0°		
Angle ST (horizontalement) ST angle (horizontal)	+ST-A	76.0°	75.7°		
Angle SK (horizontalement) SK angle (horizontal)	±SK-A	3.9°	2.9°		
Angle SH (horizontalement) SH angle (horizontal)	-SH-A	-12.6°	-14.9°		

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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**MESURES DE MANNEQUIN DAE
TEST DUMMY MEASUREMENTS**

CONDUCTEUR / DRIVER

Description et emplacement du Mannequin
ATD description and location :

DESCRIPTION	X(mm)	Y(mm)	Z(mm)
Centre de gravité de la tête, extérieur - Head CG, outboard	2148	-445	1236
Base du nez - Glabella (root of nose)	2064	-372	1247
Menton - Chin (bottom)	2058	-374	1139
Jonction menton et cou - Chin / neck junction	2131	-374	1157
Thorax au niveau des côtes supérieures - Chest at upper rib level	2026	-362	971
Thorax au niveau des côtes inférieures - Chest at lower rib level	1994	-353	862
Boulon supérieur avant de l'épaule, ext. - Shoulder bolt, top front outboard	2178	-526	1008
Boulon supérieur avant de l'épaule, int. - Shoulder bolt, top front inboard	2177	-208	1018
Boulon du coude, extérieur - Elbow bolt, outboard	1982	-591	938
Boulon du coude, intérieur - Elbow bolt, inboard	1984	-121	942
Boulon du poignet, extérieur - Wrist bolt, outboard	1792	-581	1038
Boulon du poignet, intérieur - Wrist bolt, inboard	1812	-141	1071
Point d'articulation de la hanche, extérieur - Hip point, outboard	2081	-481	711
Boulon du genou gauche, extérieur - Knee bolt, left leg, outboard	1668	-482	780
Boulon de la cheville gauche, extérieur - Ankle bolt, left leg , outboard	1483	-472	489
Point du talon gauche - Heel point, left leg	1539	-479	376
Plante du pied gauche vs plancher - Ball of foot at toeboard contact, left leg	1402	-512	411
Boulon du genou droit, intérieur - Knee bolt, right leg , inboard	1658	-289	765
Boulon de la cheville droite, intérieur - Ankle bolt, right leg , inboard	1452	-266	496
Point du talon droit - Heel point, right leg	1479	-278	368
Plante du pied droit vs plancher - Ball of foot at toeboard contact, right leg	1336	-298	475
Potentiomètre de déflexion du sternum – Sternum deflection potentiometer	2005	-356	896

Remarques – Comments : **Aucune / None**

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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**MESURES DE MANNEQUIN DAE
TEST DUMMY MEASUREMENTS**

PASSAGER / PASSENGER

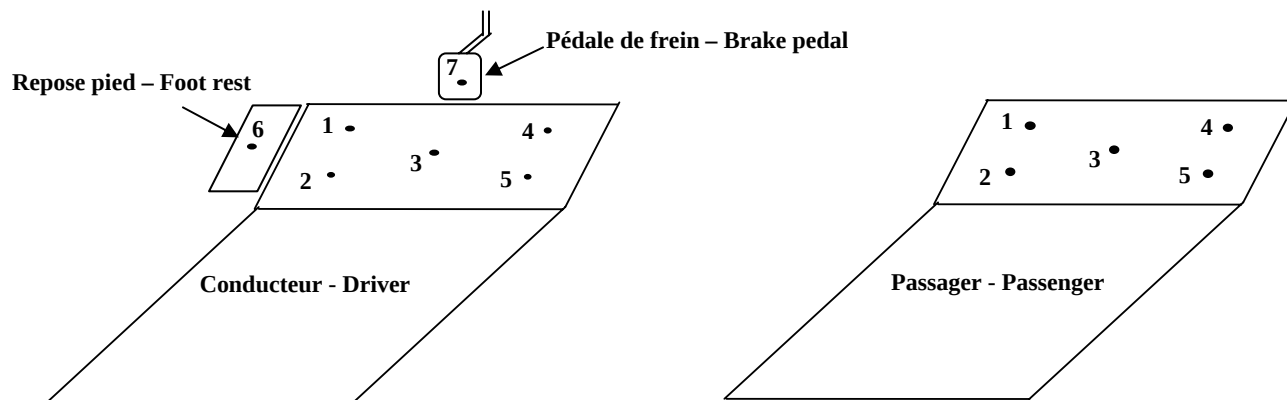
Description et emplacement du Mannequin
ATD description and location:

DESCRIPTION	X(mm)	Y(mm)	Z(mm)
Centre de gravité de la tête, extérieur - Head CG, outboard	2141	432	1245
Base du nez - Glabella (root of nose)	2056	366	1251
Menton - Chin (bottom)	2051	368	1144
Jonction menton et cou - Chin / neck junction	2124	366	1165
Thorax au niveau des côtes supérieures - Chest at upper rib level	2029	350	980
Thorax au niveau des côtes inférieures - Chest at lower rib level	1998	350	875
Boulon supérieur avant de l'épaule, ext. - Shoulder bolt, top front outboard	2156	522	1008
Boulon supérieur avant de l'épaule, int. - Shoulder bolt, top front inboard	2163	209	1016
Boulon du coude, extérieur - Elbow bolt, outboard	2062	578	811
Boulon du coude, intérieur - Elbow bolt, inboard	2079	168	818
Boulon du poignet, extérieur - Wrist bolt, outboard	1860	514	764
Boulon du poignet, intérieur - Wrist bolt, inboard	1868	184	770
Point d'articulation de la hanche, extérieur - Hip point, outboard	2078	482	716
Boulon du genou gauche, intérieur - Knee bolt, left leg, inboard	1659	311	759
Boulon de la cheville gauche, intérieur - Ankle bolt, left leg, inboard	1461	281	481
Point du talon gauche - Heel point, left leg	1523	285	377
Plante du pied gauche vs plancher - Ball of foot at toeboard contact, left leg	1377	320	411
Boulon du genou droit, extérieur - Knee bolt, right leg, outboard	1660	478	764
Boulon de la cheville droite, extérieur - Ankle bolt, right leg, outboard	1454	433	490
Point du talon droit - Heel point, right leg	1504	443	380
Plante du pied droit vs plancher - Ball of foot at toeboard contact, right leg	1376	474	425
Potentiomètre de déflexion du sternum – Sternum deflection potentiometer	2007	350	909

Remarques – Comments : **Aucune / None**

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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MESURES PLANCHER / FOOTWELL MEASUREMENTS



N° Cible	AVANT ESSAI	APRÈS ESSAI	
Target No.	PRE-TEST	POST-TEST	Δ mm
1	x	1169	1174
	y	-479	-490
	z	505	530
2	x	1271	1268
	y	-493	-504
	z	398	418
3	x	1191	1188
	y	-360	-372
	z	411	432
4	x	1143	1145
	y	-256	-269
	z	489	513
5	x	1278	1274
	y	-273	-283
	z	398	416
6	x	1256	1258
	y	-587	-598
	z	473	493
7	x	1323	1345
	y	-387	-403
	z	544	563

N° Cible	AVANT ESSAI	APRÈS ESSAI	
Target No.	PRE-TEST	POST-TEST	Δ mm
1	x	1139	1145
	y		
	z		
2	x	1240	1243
	y		
	z		
3	x	1171	1172
	y		
	z		
4	x	1167	1171
	y	533	528
	z	521	530
5	x	1240	1244
	y	528	526
	z	401	410

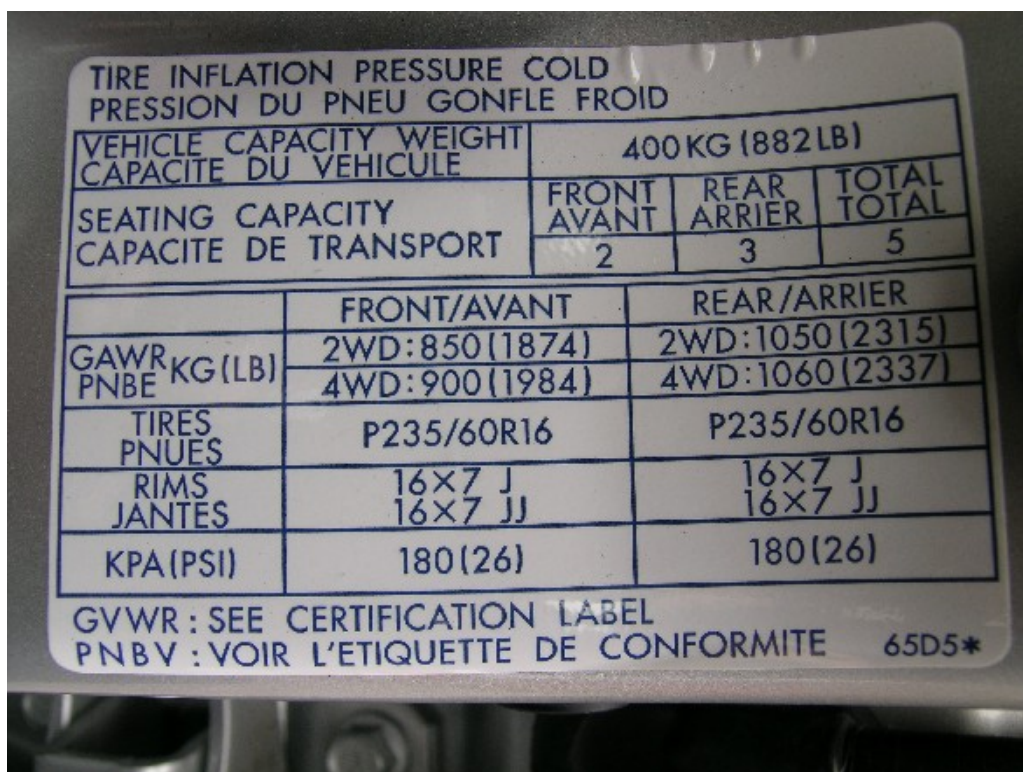
APPENDICE / APPENDIX A

**PHOTOGRAPHIES DE L'ESSAI
TEST PHOTOGRAPHS**

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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1. Étiquette de déclaration de conformité du véhicule d'essai.
Statement of compliance label of the test vehicle.



2. Étiquette d'information des pneus.
Tire information label.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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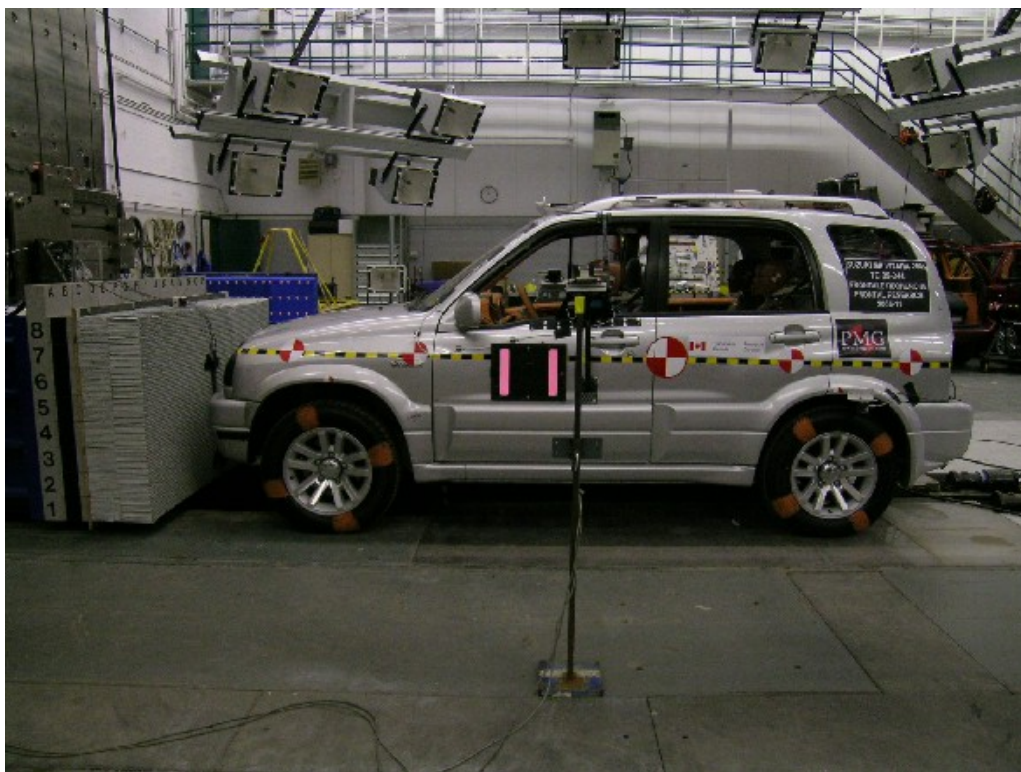


3. Vue $\frac{3}{4}$ avant du véhicule d'essai.
 $\frac{3}{4}$ front view of the test vehicle.



4. Vue $\frac{3}{4}$ arrière du véhicule d'essai.
 $\frac{3}{4}$ rear view of the test vehicle.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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5. Vue générale côté gauche du véhicule d'essai, avant essai.
Left side view of the test vehicle, pre-test.



6. Vue générale côté gauche du véhicule d'essai, après essai.
Left side view of the test vehicle, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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7. Vue arrière du véhicule d'essai, avant essai.
Rear view of the test vehicle, pre-test.



8. Vue arrière du véhicule d'essai, après essai.
Rear view of the test vehicle, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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9. Vue générale côté droit du véhicule d'essai, avant essai.
General right side view of the test vehicle, pre-test.

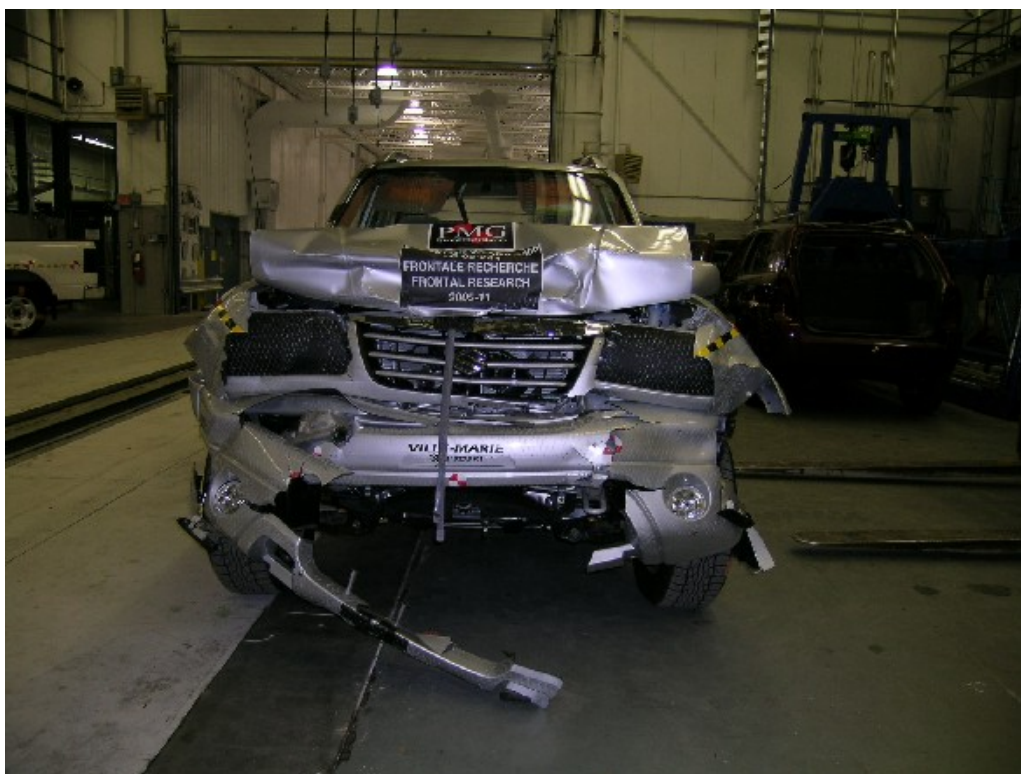


10. Vue générale côté droit du véhicule d'essai, après essai.
General right side view of the test vehicle, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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11. Vue avant du véhicule d'essai, avant essai.
Front view of the test vehicle, pre-test.

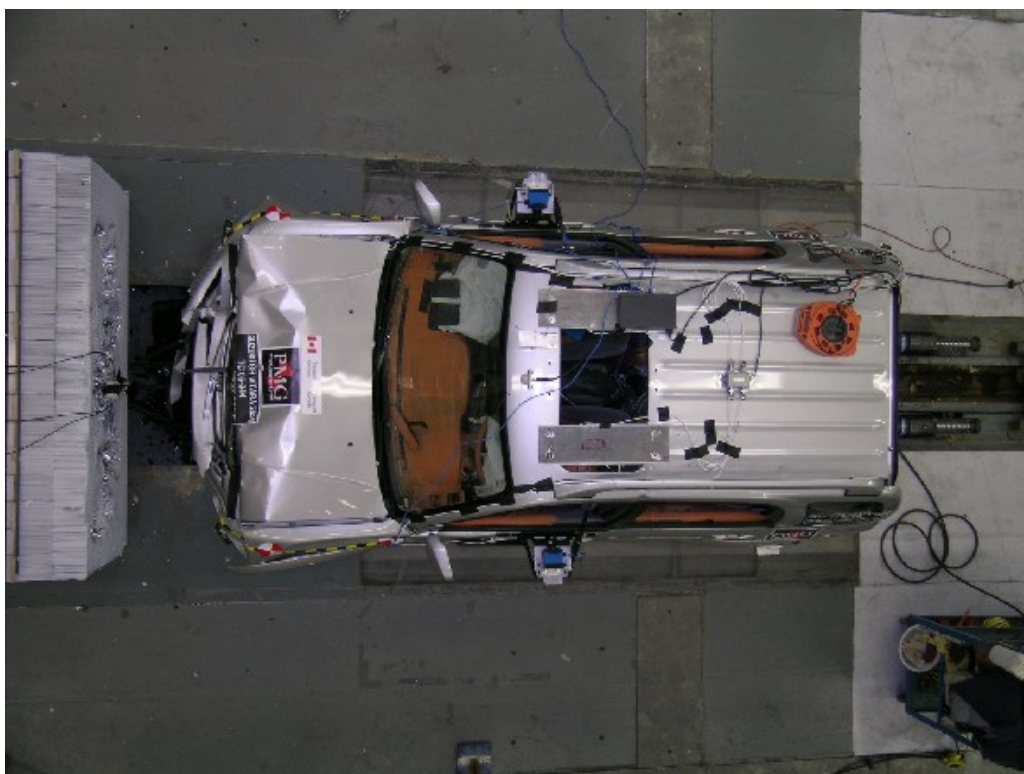


12. Vue avant du véhicule d'essai, après essai.
Front view of the test vehicle, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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13. Vue de plan du véhicule d'essai, avant essai.
Over view of the test vehicle, pre-test.



14. Vue de plan du véhicule d'essai, après essai.
Over view of the test vehicle, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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15. Vue de plan du devant du véhicule d'essai, avant essai.
Over view of the front part of the test vehicle, pre-test.

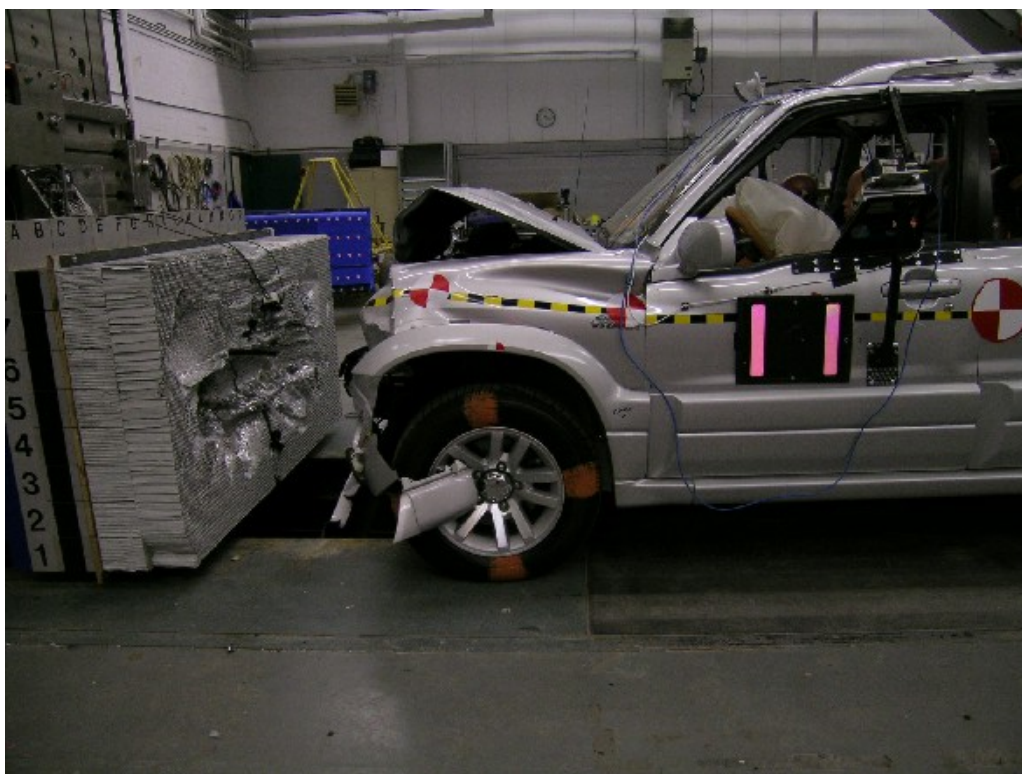


16. Vue de plan du devant du véhicule d'essai, après essai.
Over view of the front part of the test vehicle, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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17. Vue côté gauche de l'avant du véhicule d'essai, avant essai.
Left side view of front of test vehicle, pre-test.



18. Vue côté gauche de l'avant du véhicule d'essai, après essai.
Left side view of front of test vehicle, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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19. Vue côté droit de l'avant du véhicule d'essai, avant essai.
Right side view of front of test vehicle, pre-test.

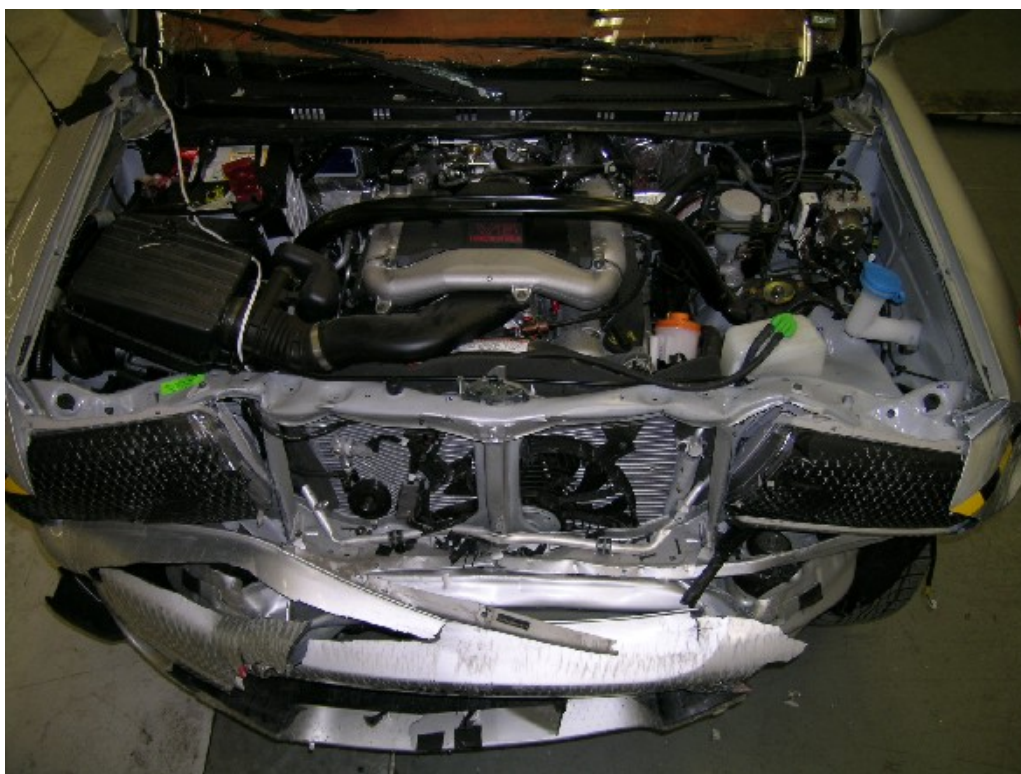


20. Vue côté droit de l'avant du véhicule d'essai, après essai.
Right side view of front of test vehicle, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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21. Vue du compartiment moteur du véhicule d'essai, avant essai.
Engine compartment view of the vehicle, pre-test.



22. Vue du compartiment moteur du véhicule d'essai, après essai.
Engine compartment view of the vehicle, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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23. Vue du dessous du compartiment moteur, avant essai.
Under view of the engine compartment , pre-test.



24. Vue du dessous du compartiment moteur, après essai.
Under view of the engine compartment , post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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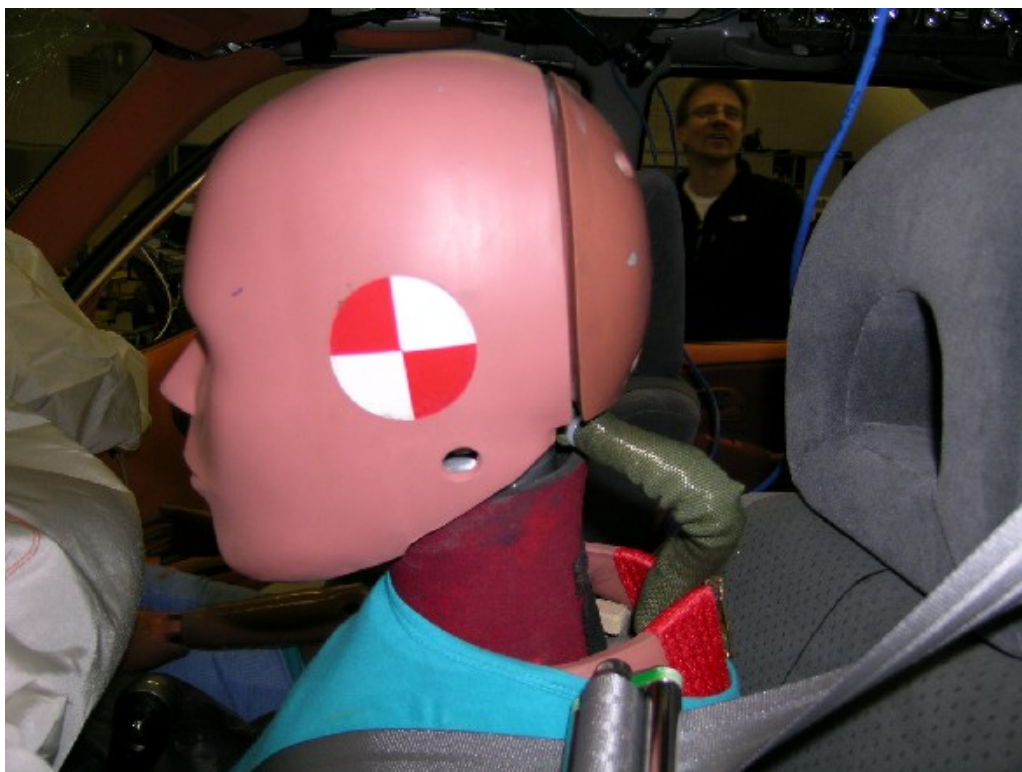


25. Position du conducteur, avant essai.
Driver's position, pre-test.



26. Position du conducteur, après essai.
Driver's position, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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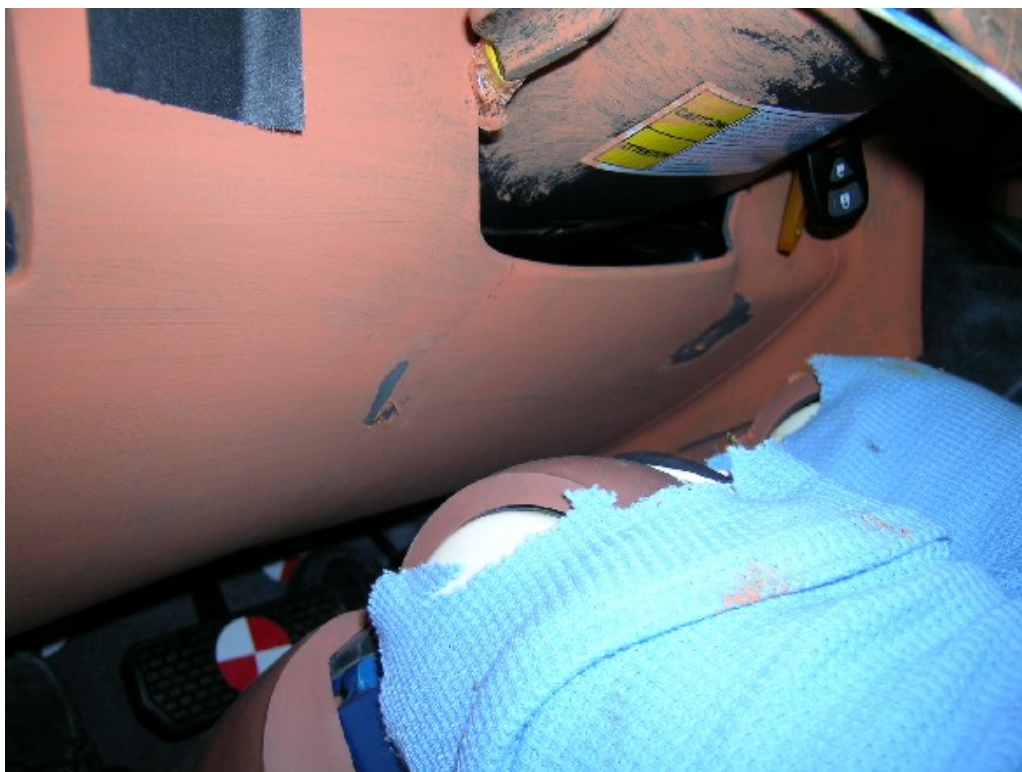


27. Point de contact de tête du conducteur, après essai.
Driver's head contact point, post-test.



28. Point de contact de tête du conducteur, après essai.
Driver's head contact point, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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29. Point de contact des genoux du conducteur, après essai.
Driver's knees contact point, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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30. Position du passager, avant essai.
Passenger's position, pre-test.



31. Position du passager, après essai.
Passenger's position, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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32. Point de contact de tête du passager, après essai.
Passenger's head contact point, post-test.



33. Point de contact de tête du passager, après essai.
Passenger's head contact point, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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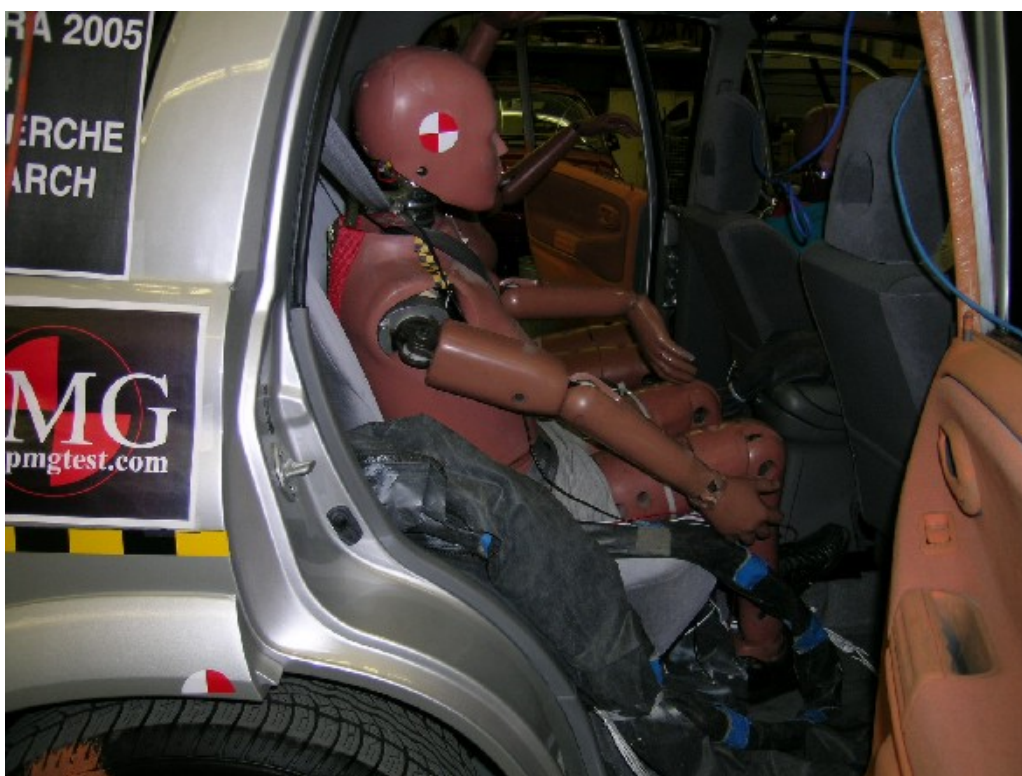


**34. Point de contact des genoux du passager, après essai.
Passenger's knees contact point, post-test.**

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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35. Position du passager arrière droit, avant essai.
Rear right passenger's position, pre-test.

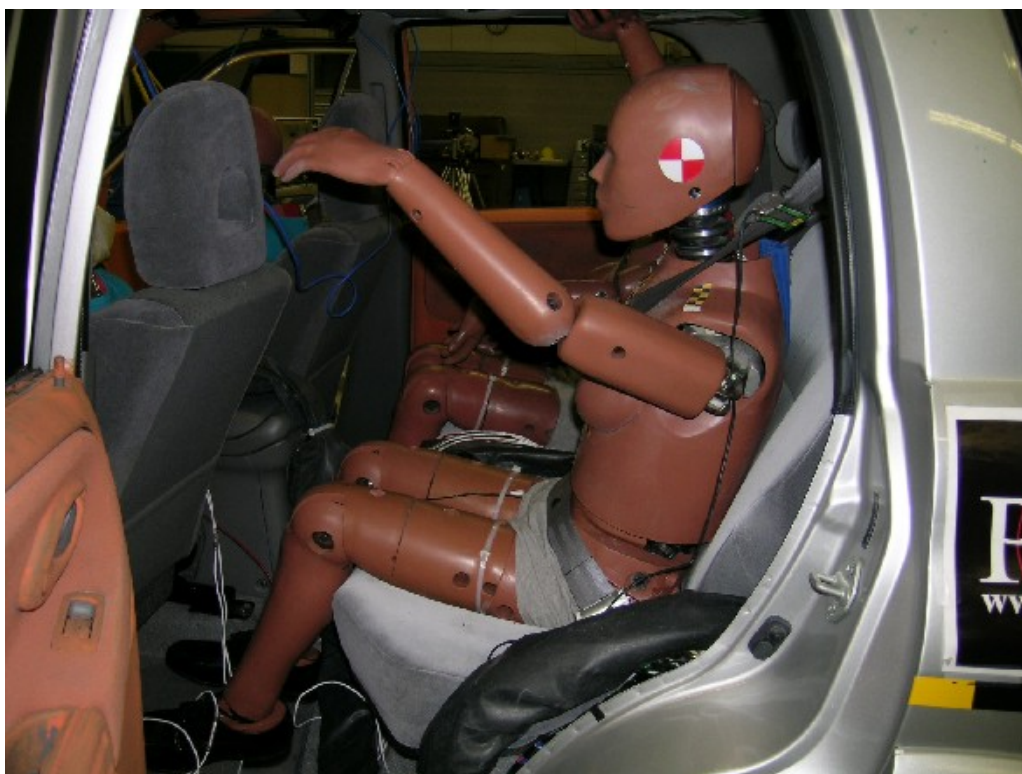


36. Position du passager arrière droit, après essai.
Rear right passenger's position, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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37. Position du passager arrière gauche, avant essai.
Rear left passenger's position, pre-test.



38. Position du passager arrière gauche, après essai.
Rear left passenger's position, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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39. Vue latérale droit de la Face Déformable, avant essai.
Right side view of the Deformable Face, pre-test.



40. Vue latérale droit de la Face Déformable, après essai.
Right side view of the Deformable Face, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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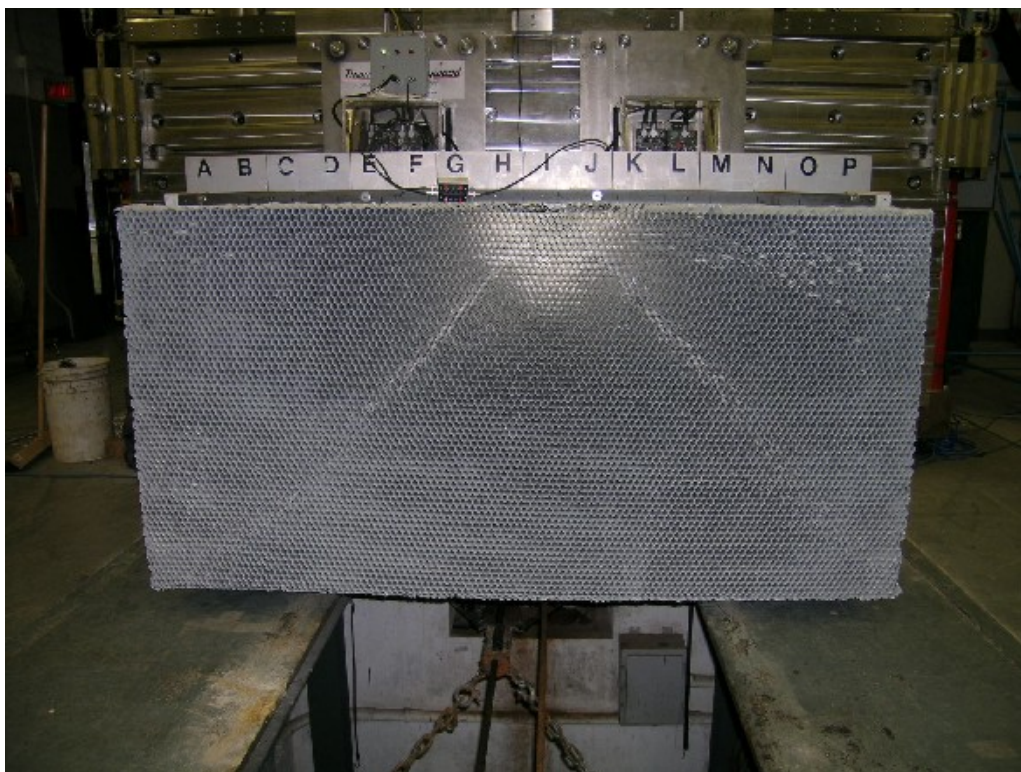


41. Vue latérale gauche de la Face Déformable, avant essai.
Left side view of the Deformable Face, pre-test.



42. Vue latérale gauche de la Face Déformable, après essai.
Left side view of the Deformable Face, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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43. Vue avant de la Face Déformable, avant essai.
Front view of the Deformable Face, pre-test.



44. Vue avant de la Face Déformable, après essai.
Front view of the Deformable Face, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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45. Vue $\frac{3}{4}$ droit de la Face Déformable, avant essai.
 $\frac{3}{4}$ right view of the Deformable Face, pre-test.



46. Vue $\frac{3}{4}$ droit de la Face Déformable, après essai.
 $\frac{3}{4}$ right view of the Deformable Face, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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47. Vue $\frac{3}{4}$ gauche de la Face Déformable, avant essai.
 $\frac{3}{4}$ left view of the Deformable Face, pre-test.



48. Vue $\frac{3}{4}$ gauche de la Face Déformable, après essai.
 $\frac{3}{4}$ left view of the Deformable Face, post-test.

Date de collision Crash date	2005-11-21	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-244
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49. Affichage du lecteur de vitesse.
Speed trap reading.

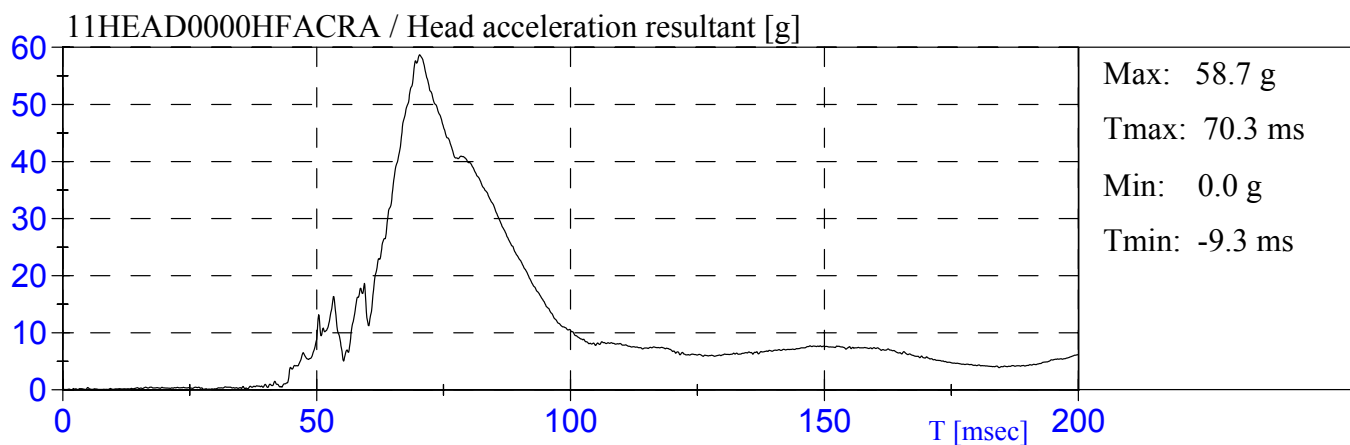
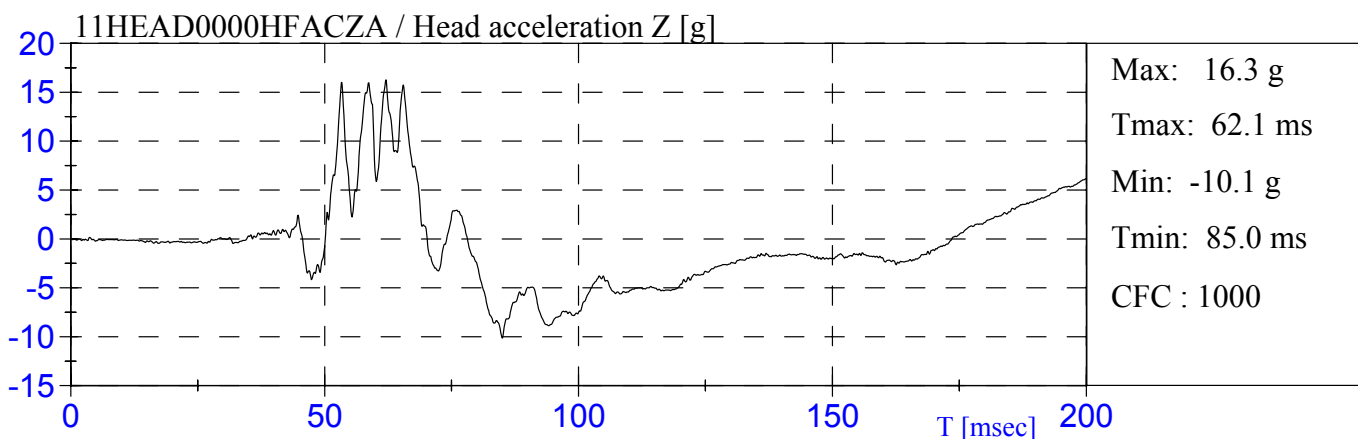
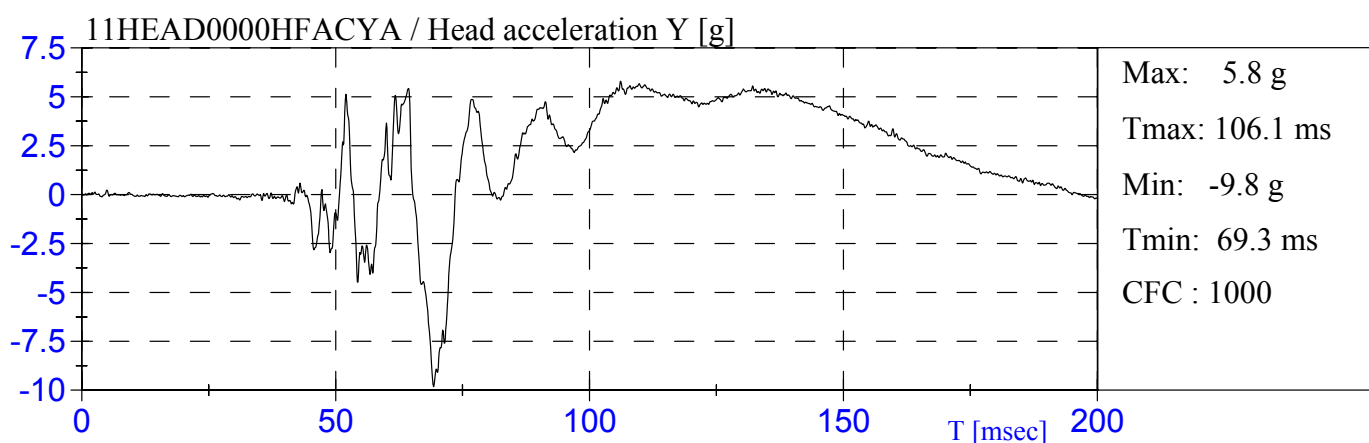
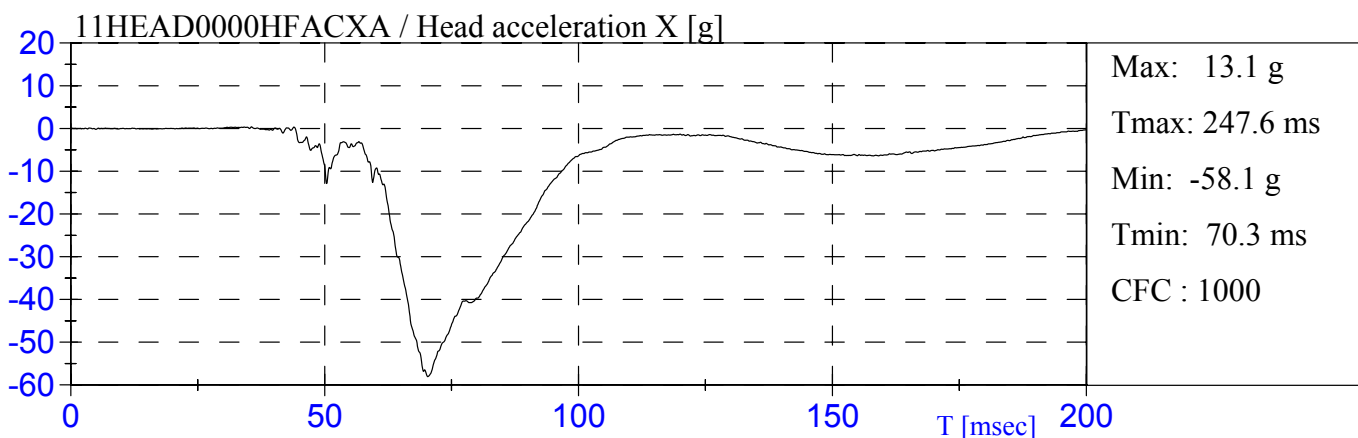
APPENDICE / APPENDIX B

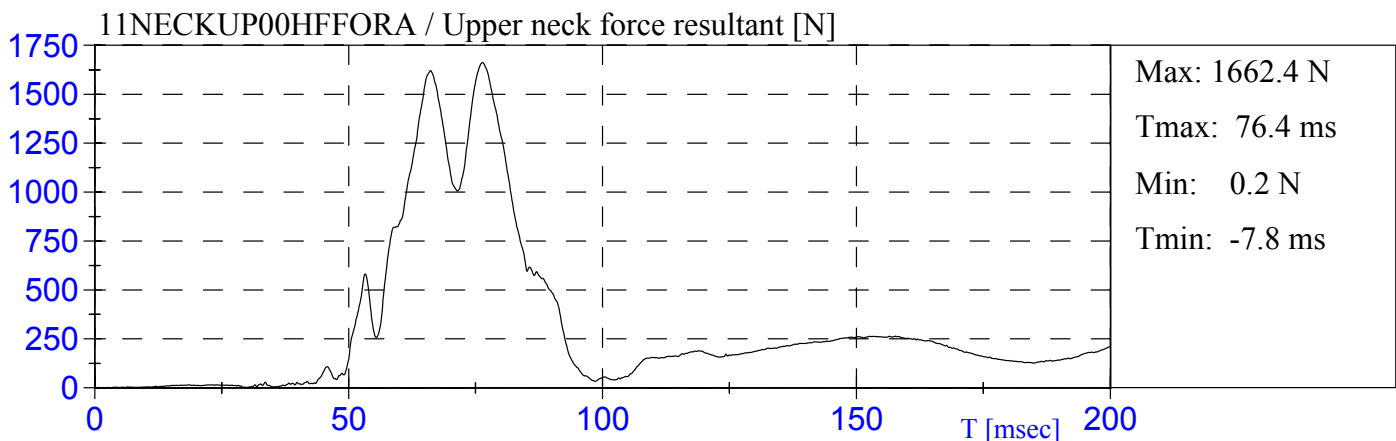
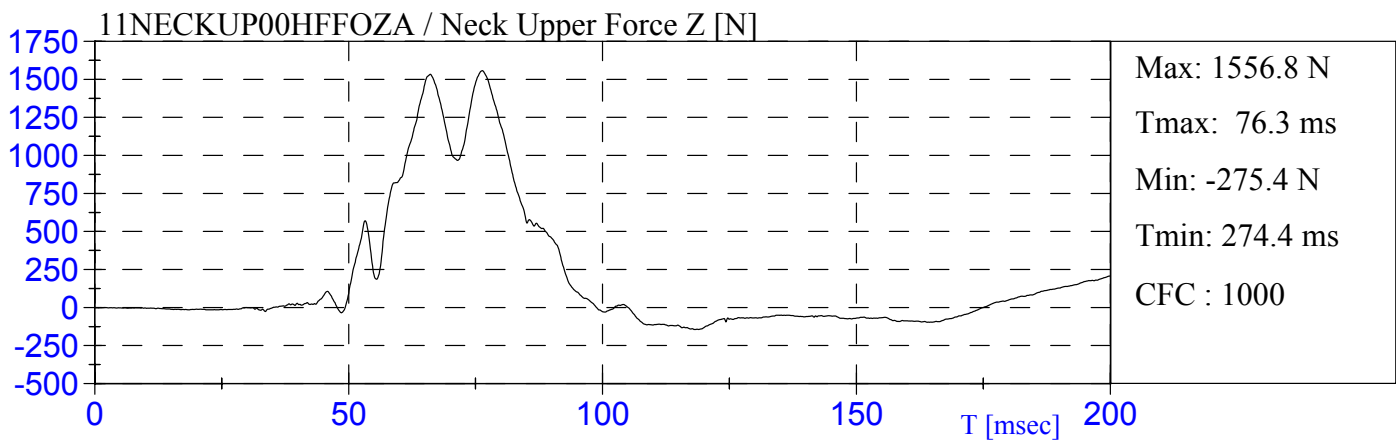
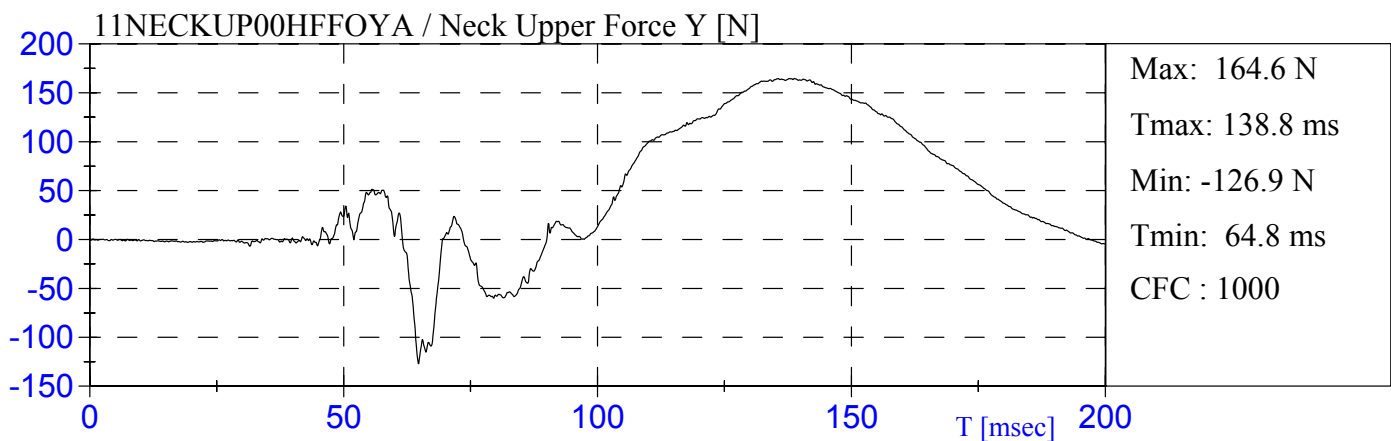
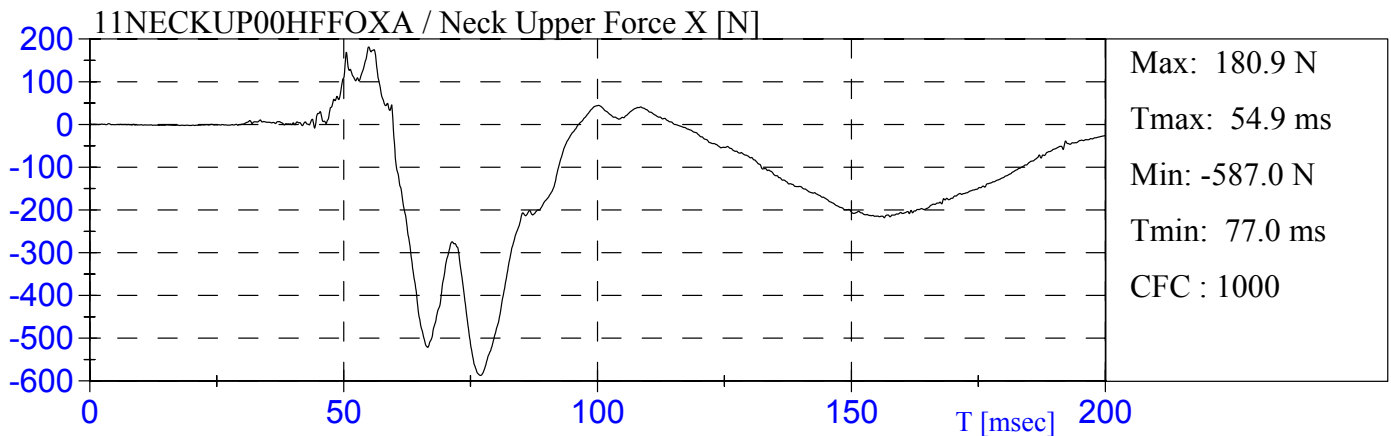
**DONNÉES GRAPHIQUES
GRAPHICAL DATA**

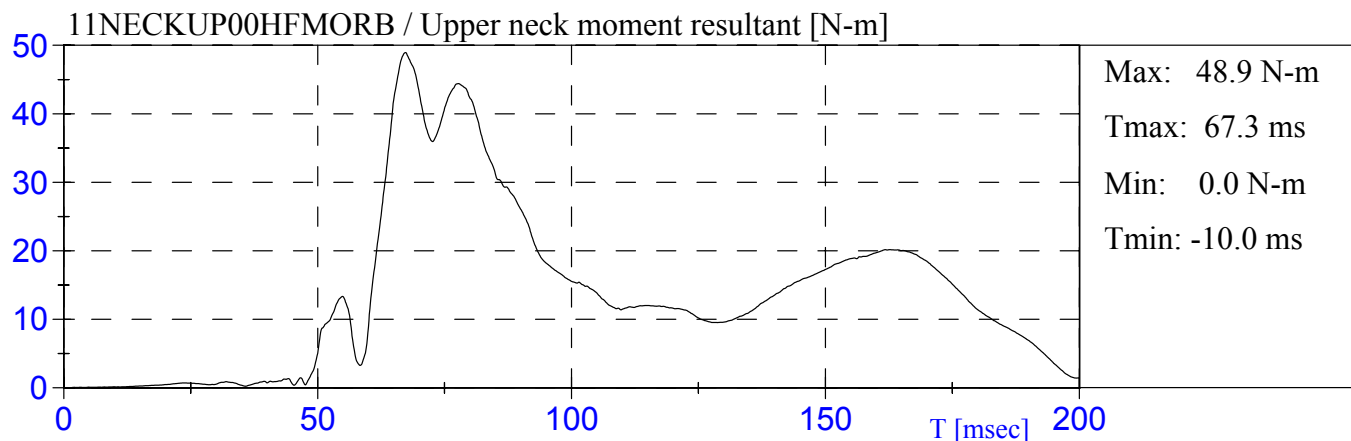
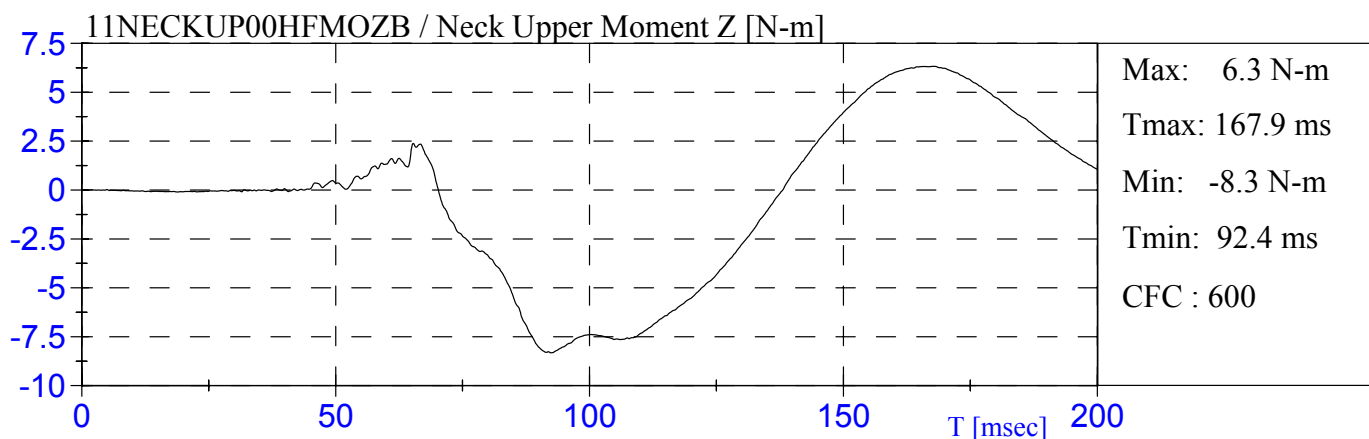
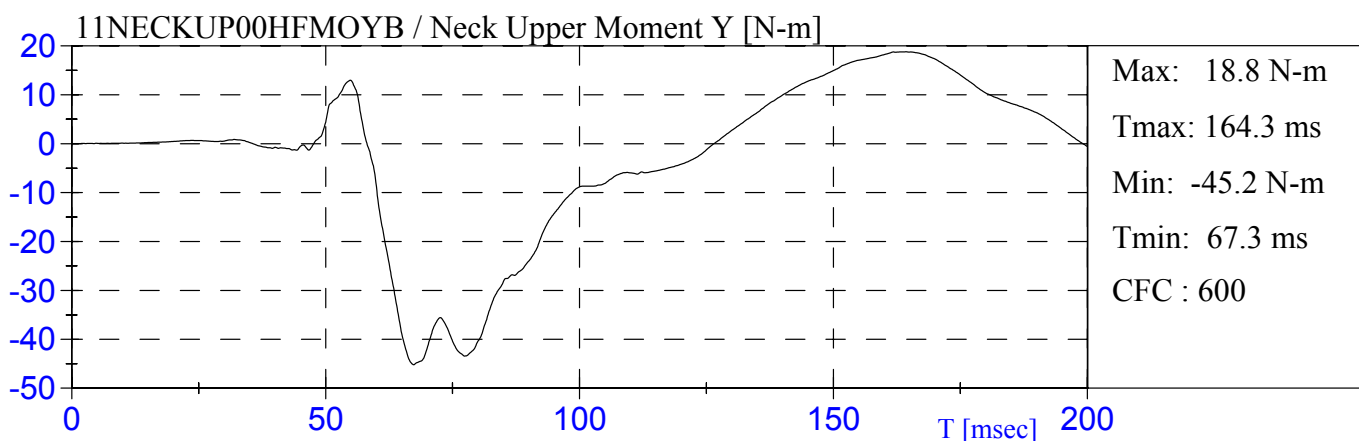
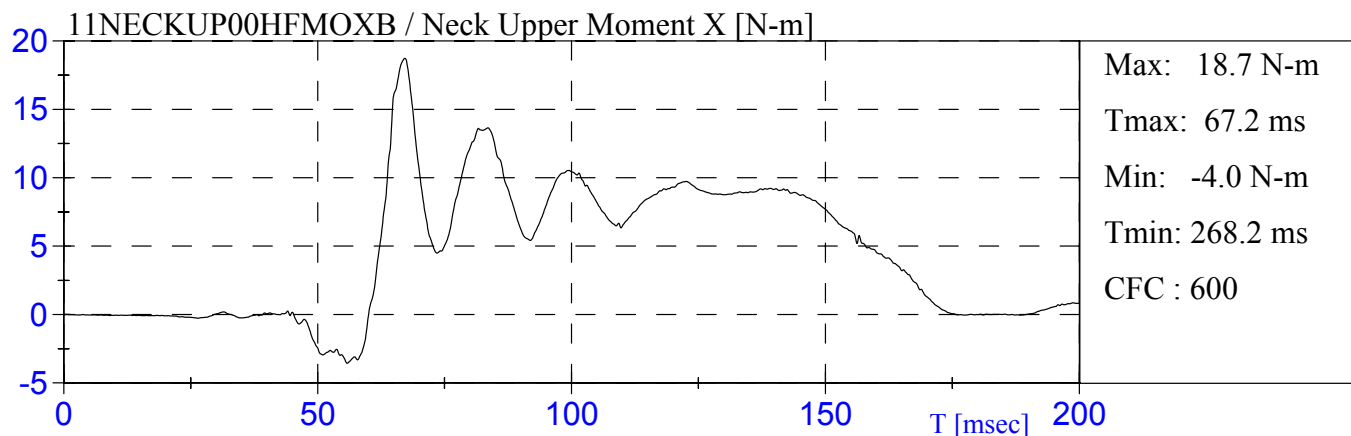


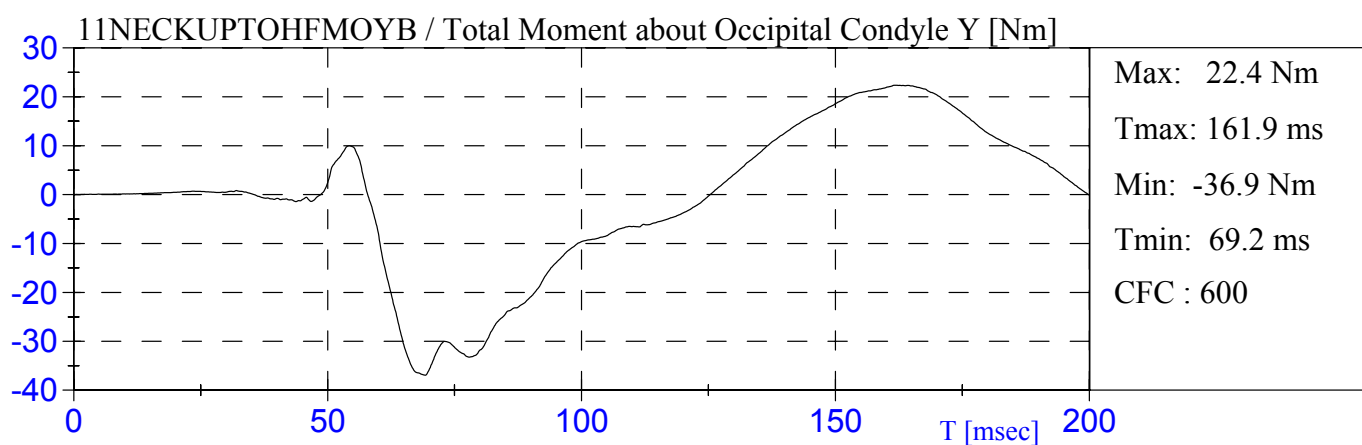
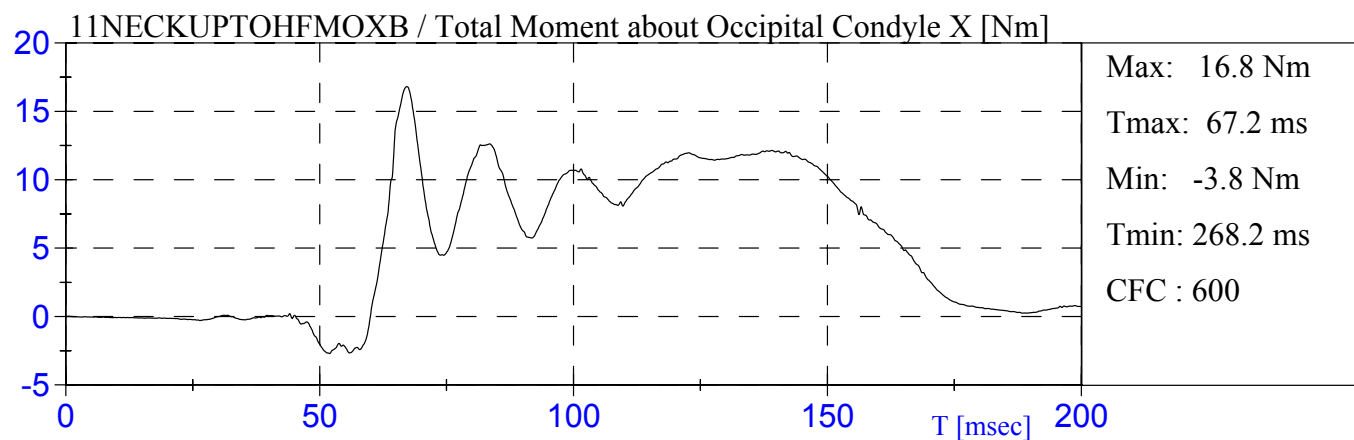
Nom du client Client Name	TRANSPORT CANADA
Type de véhicule Type of Vehicle	GRAND VITARA 2005
Numéro de TC Tc Number	TC05-244
Vitesse Speed	40 km/h
Numéro de contrat Contract No	06-6008
Acquisition de données selon Data Acquisition according to	SAE J211/1 MAR 95
Date de l'essai Test date	2005-11-21
Titre du projet Project Title	COLLISION DE RECHERCHE COLLISION FRONTALE RESEARCH COLLISION TEST FRONTAL CRASH
MANNEQUIN / DUMMY	

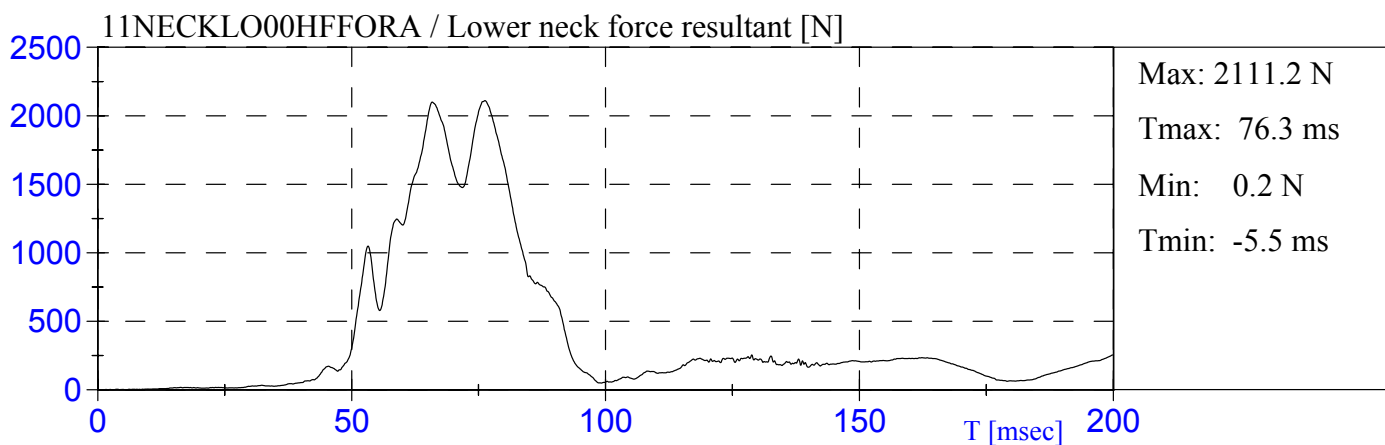
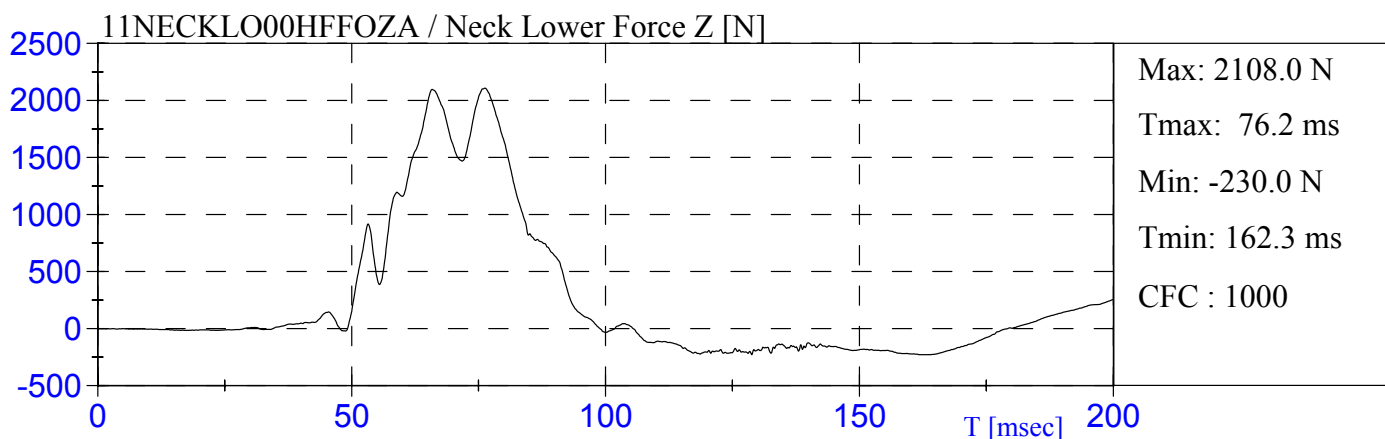
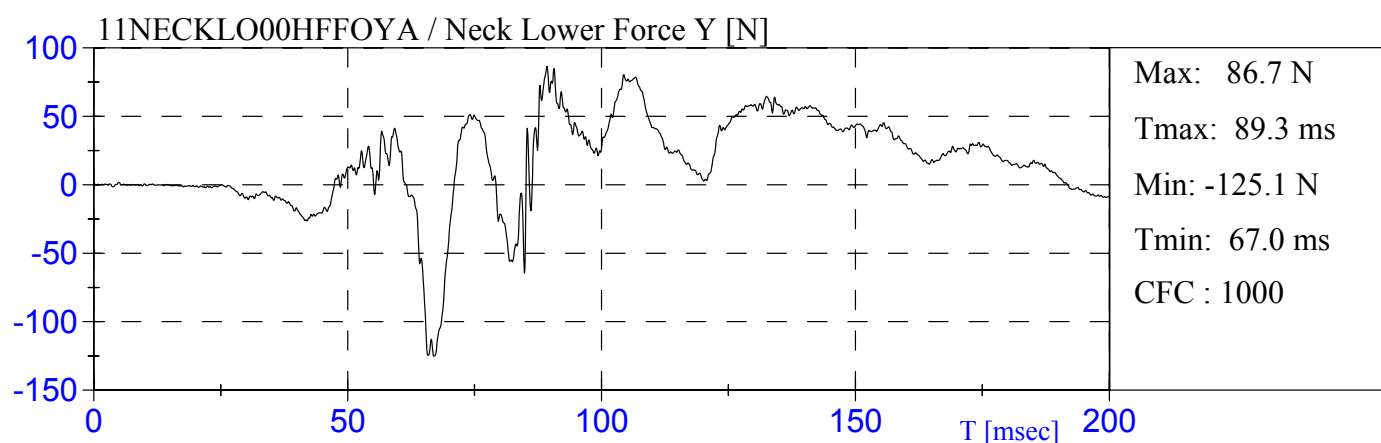
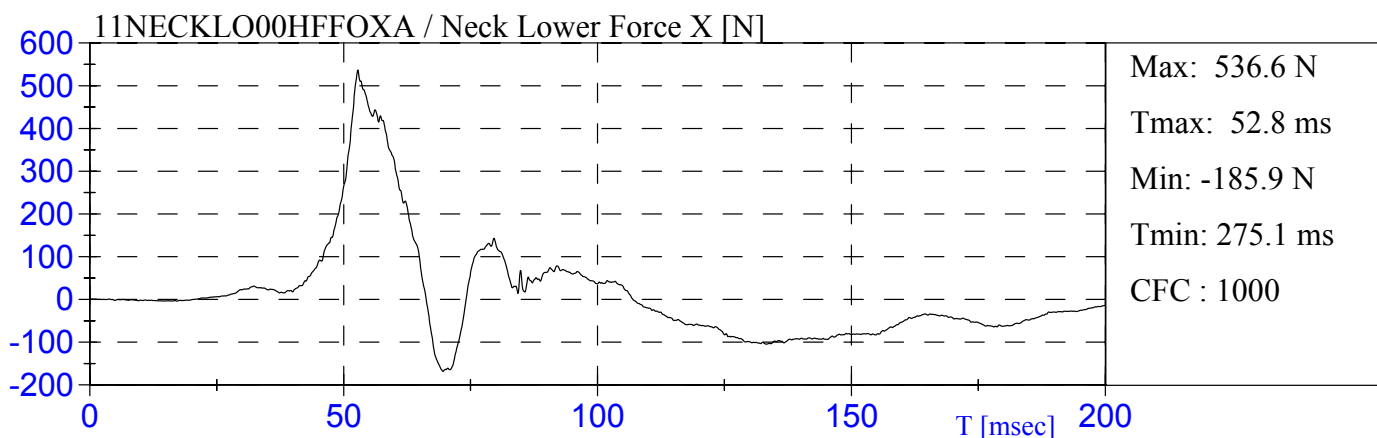
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HF		HF
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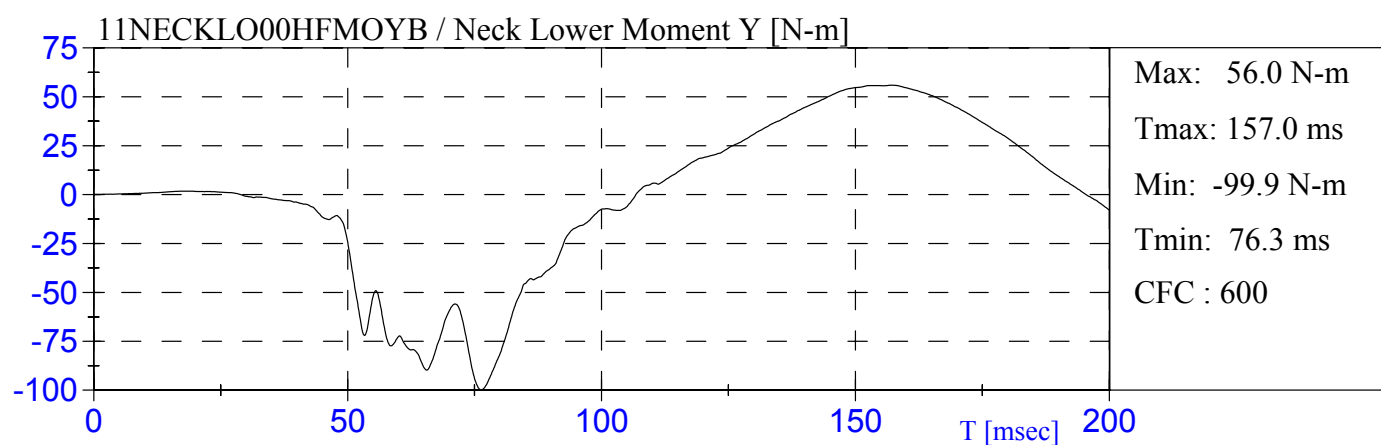
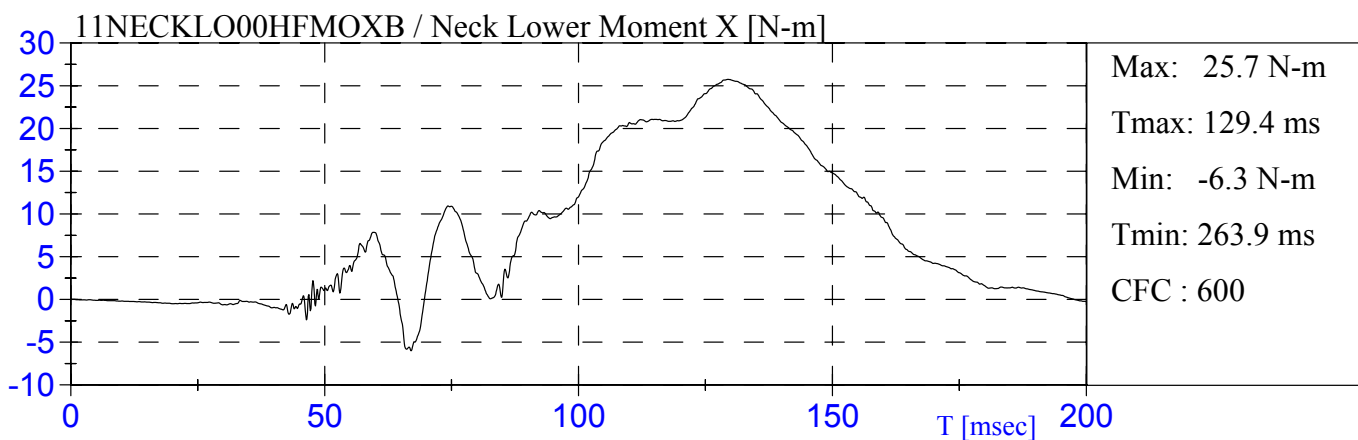


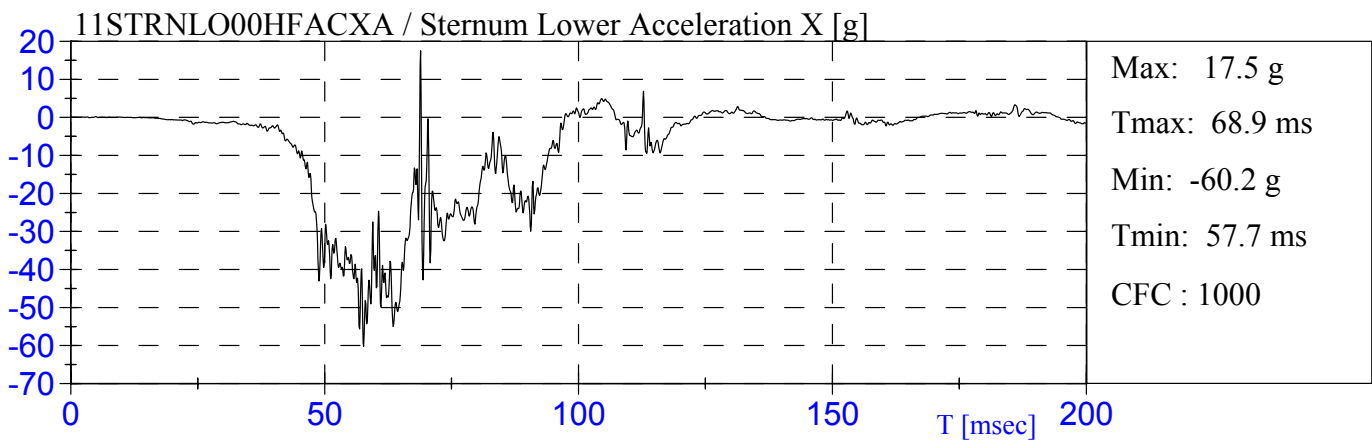
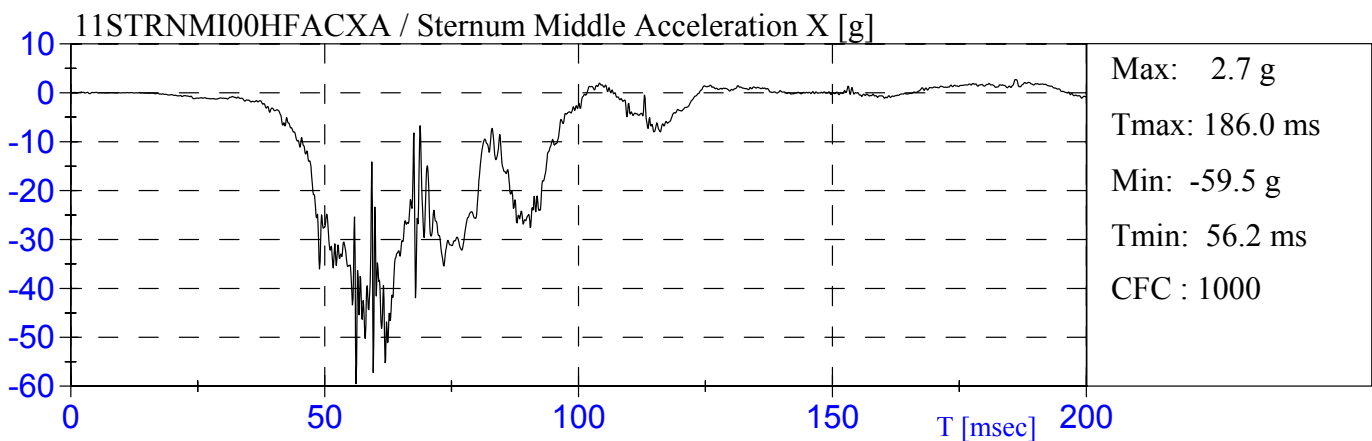
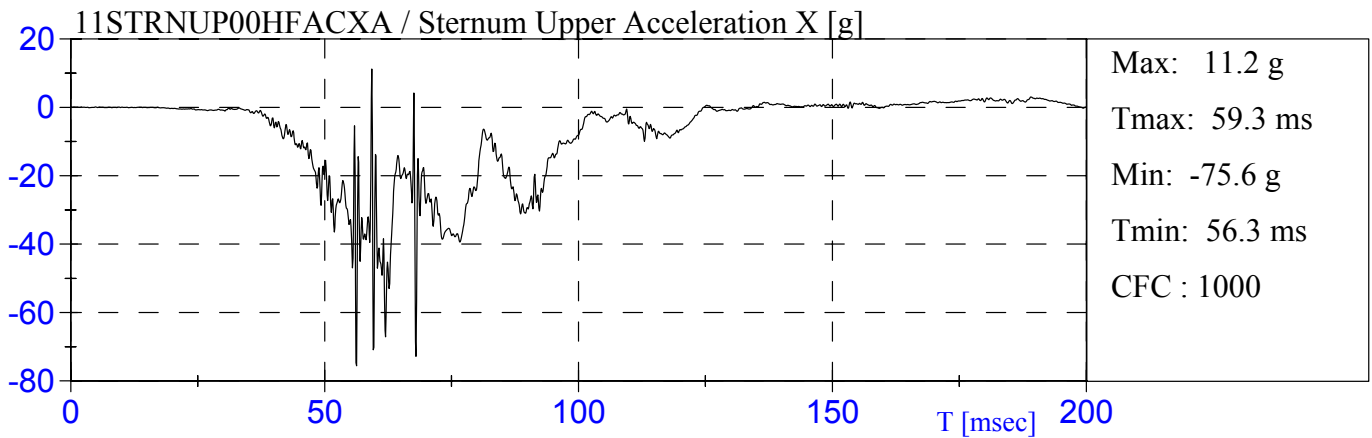


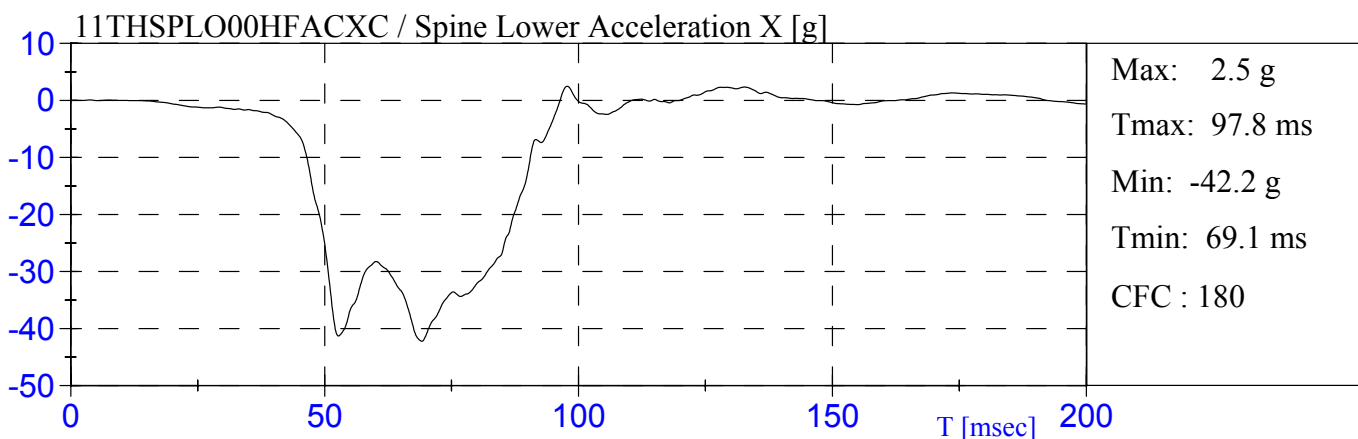
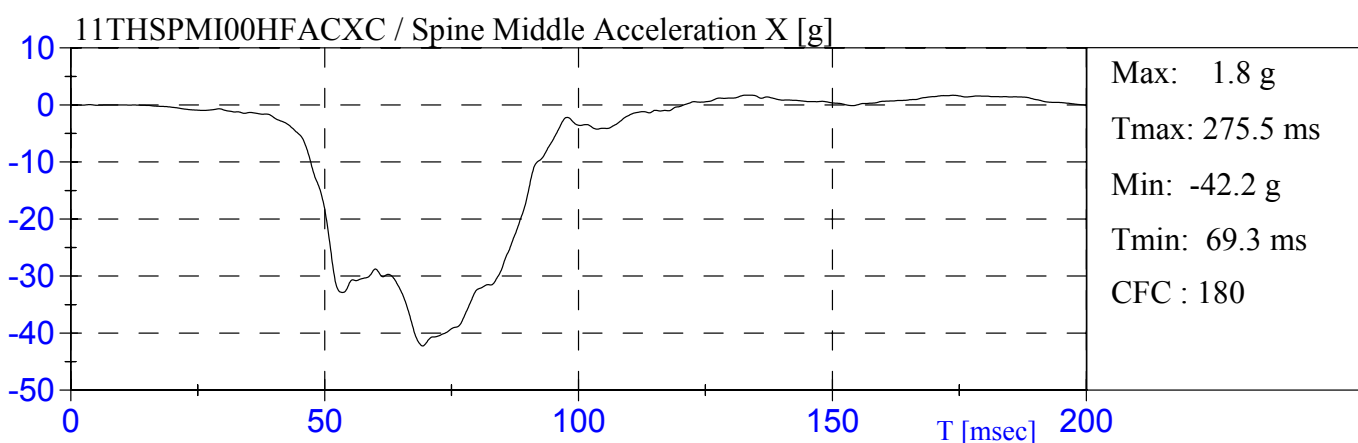
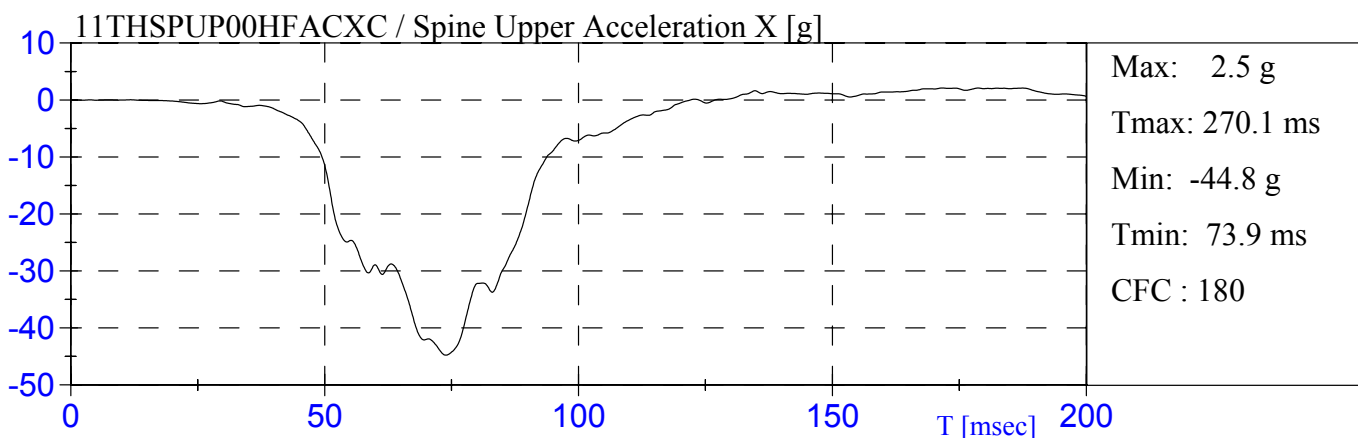


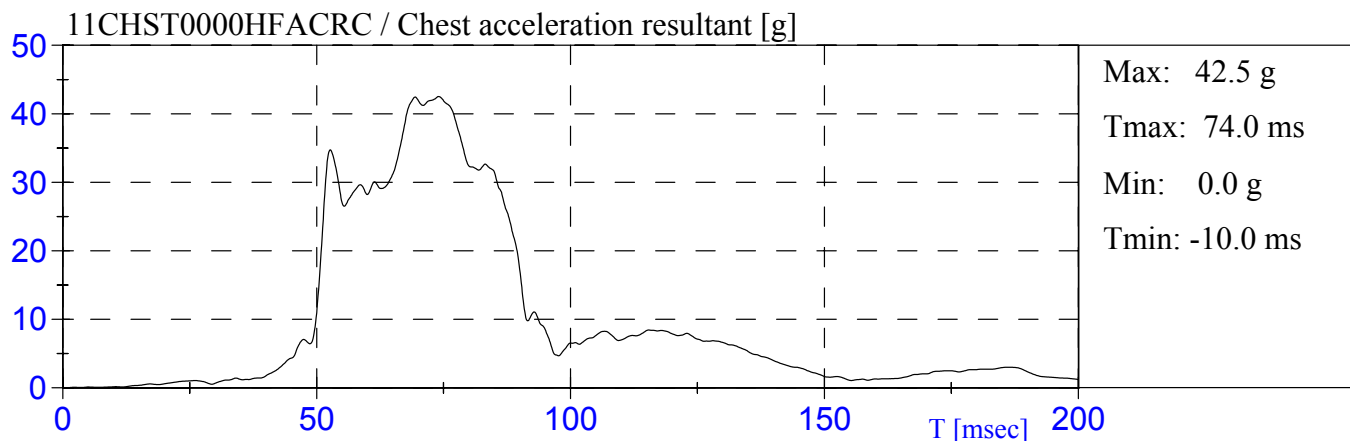
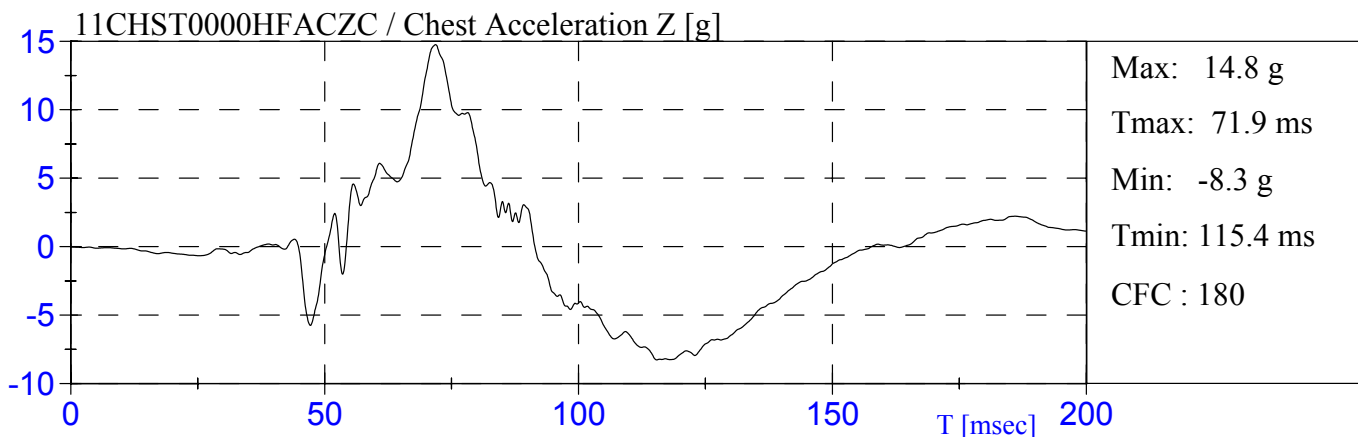
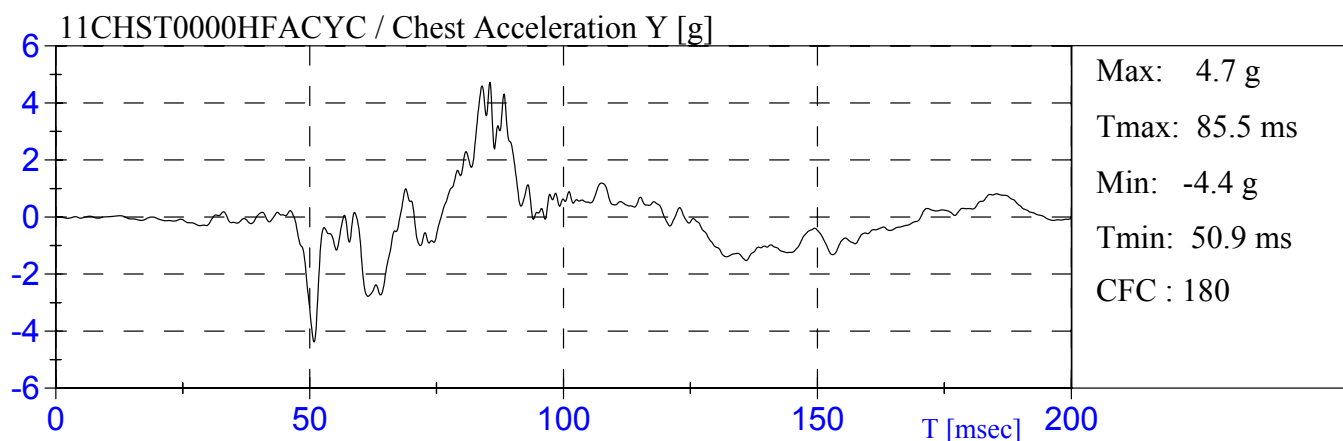
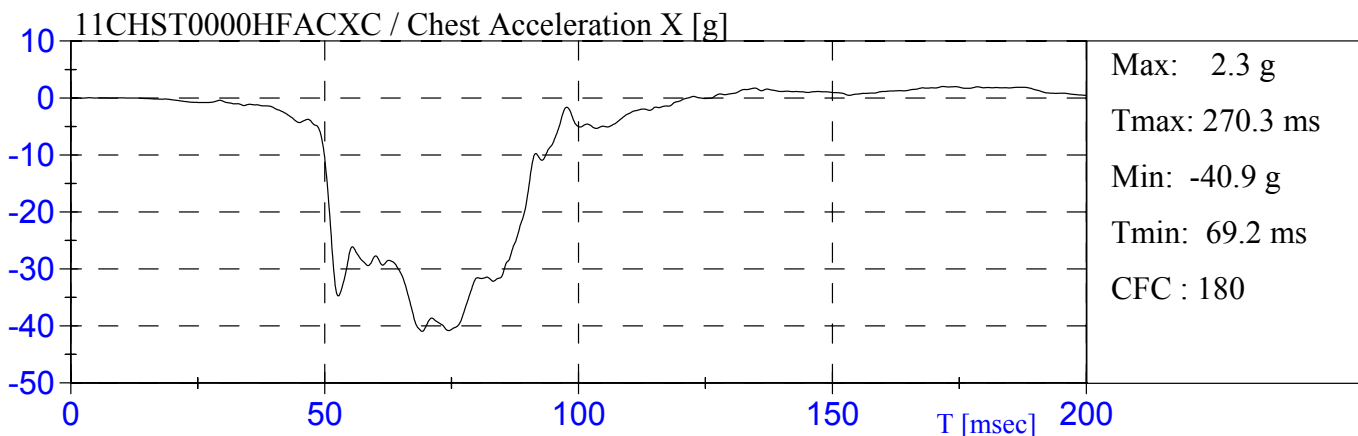


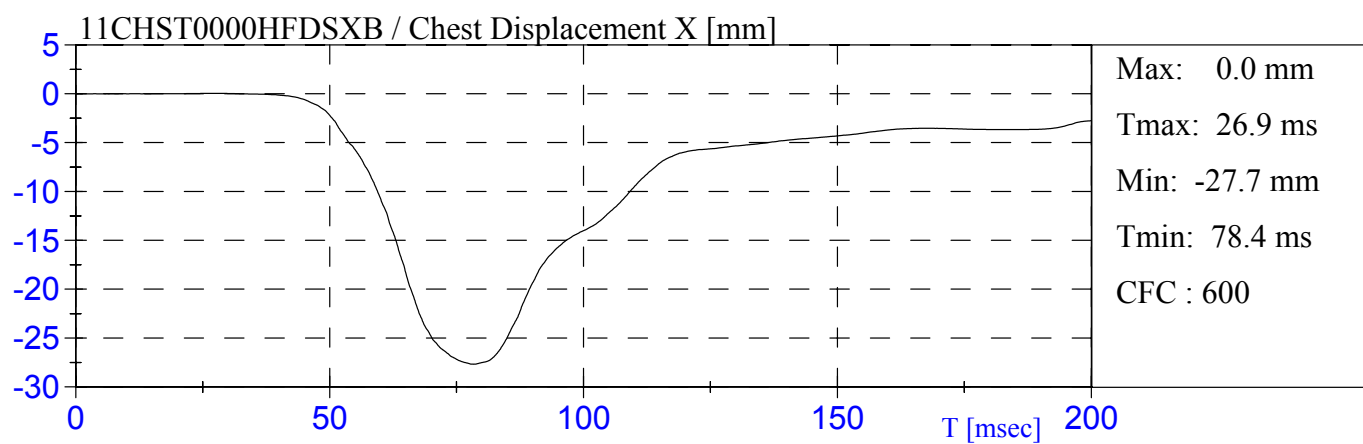


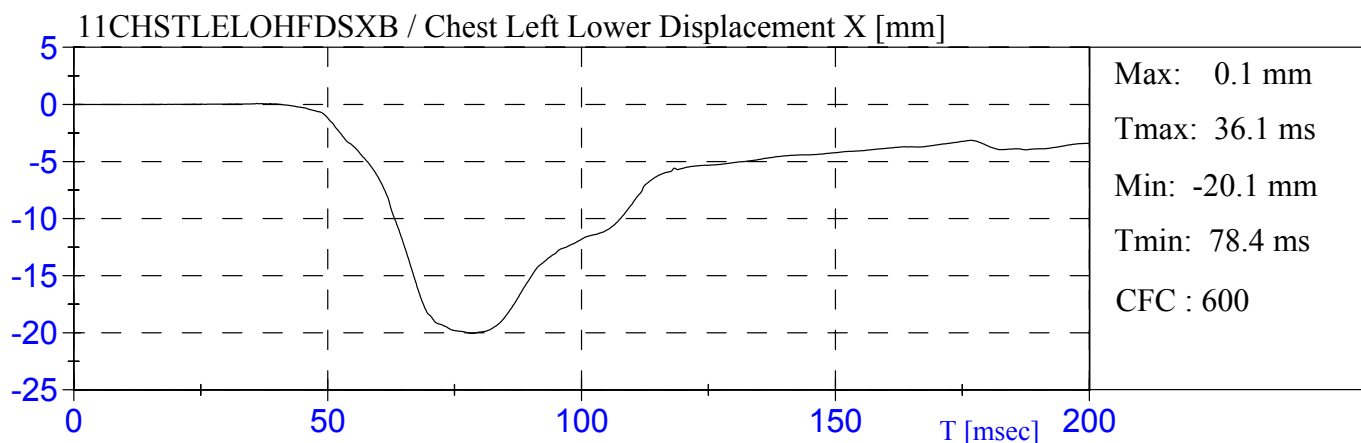
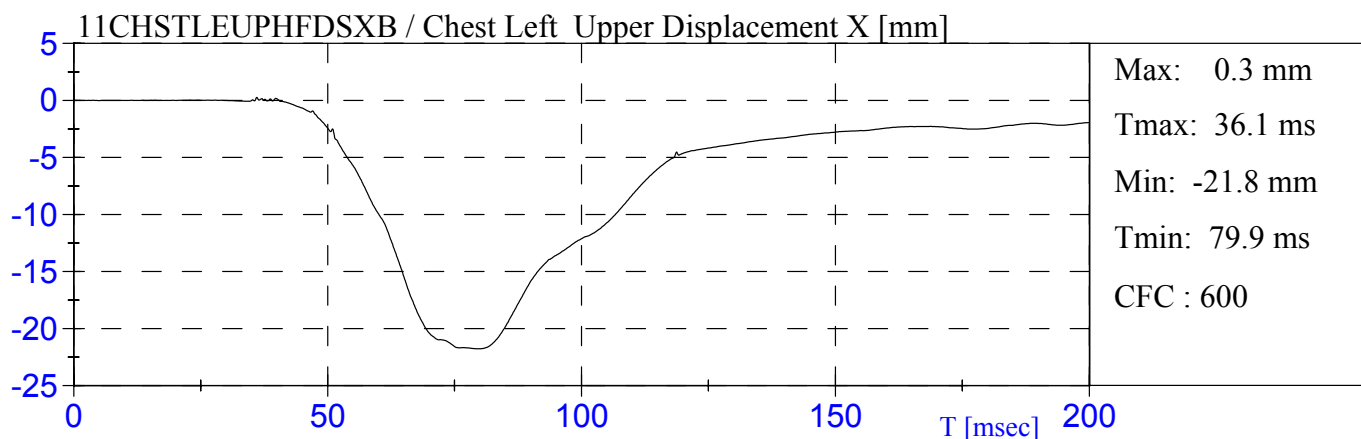
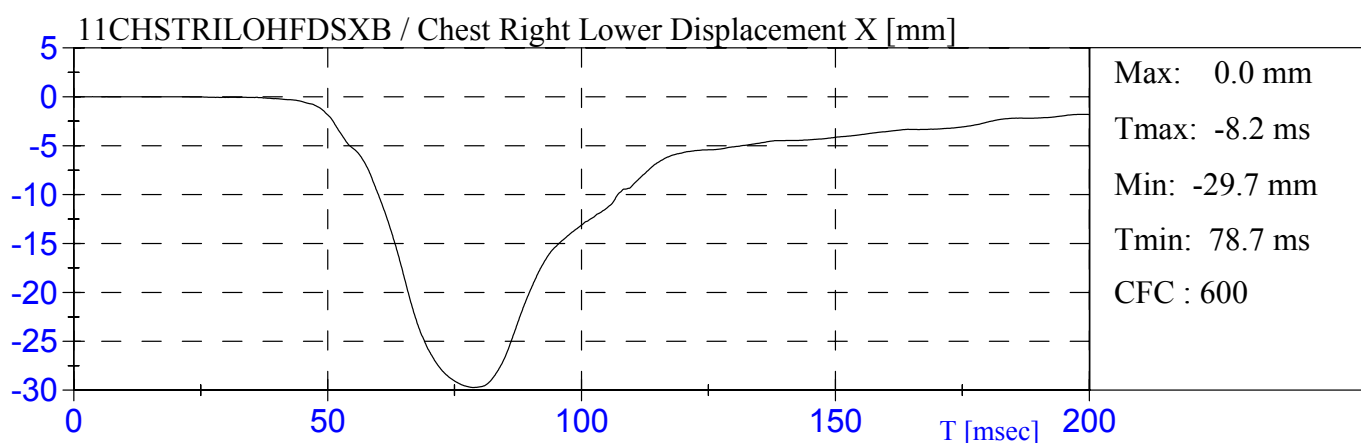
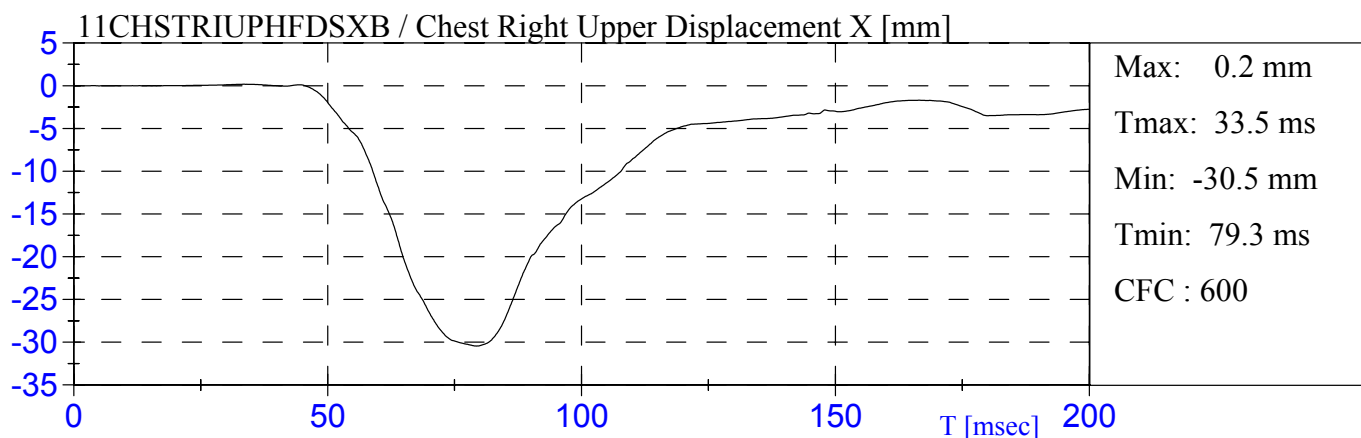


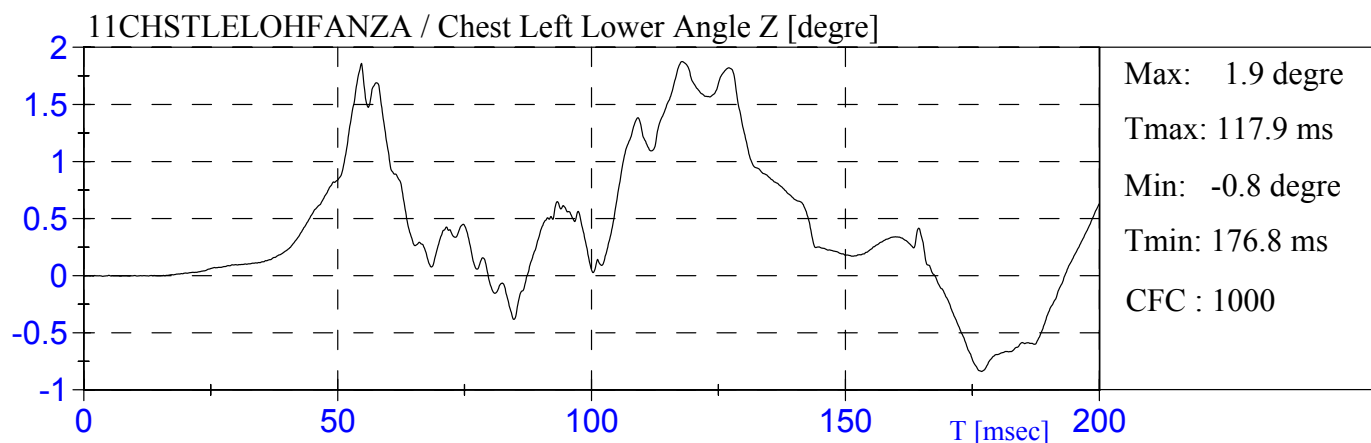
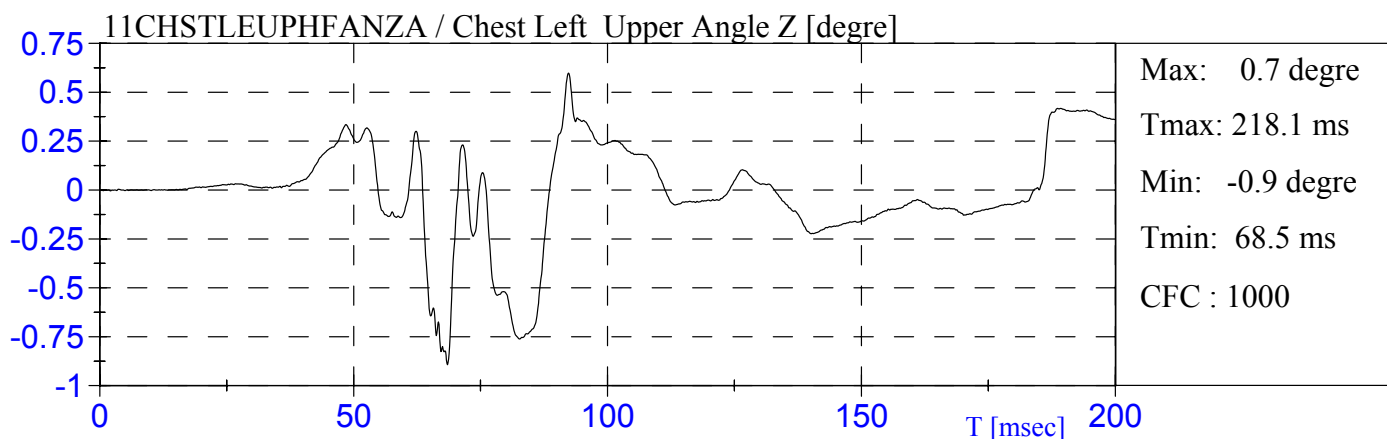
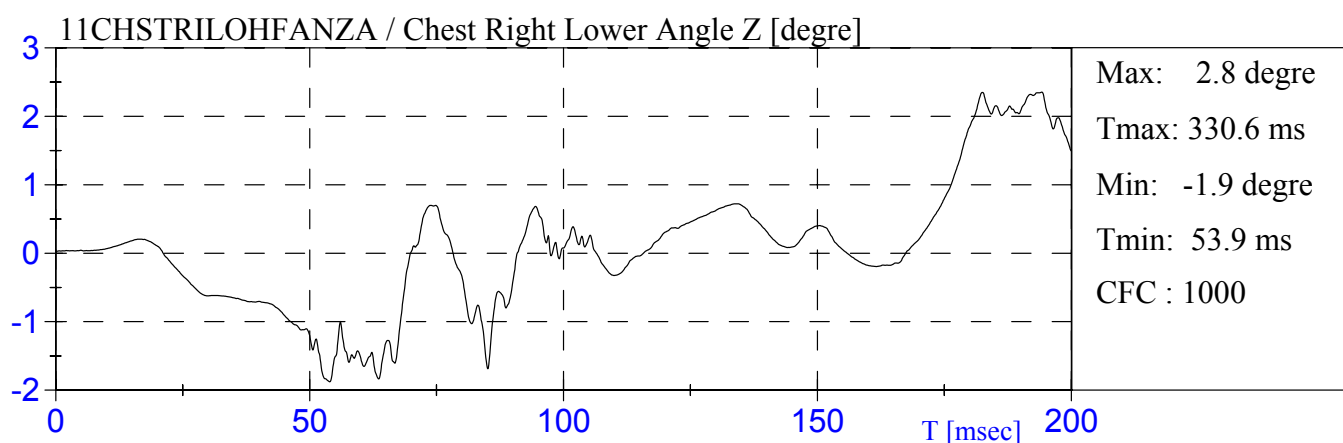
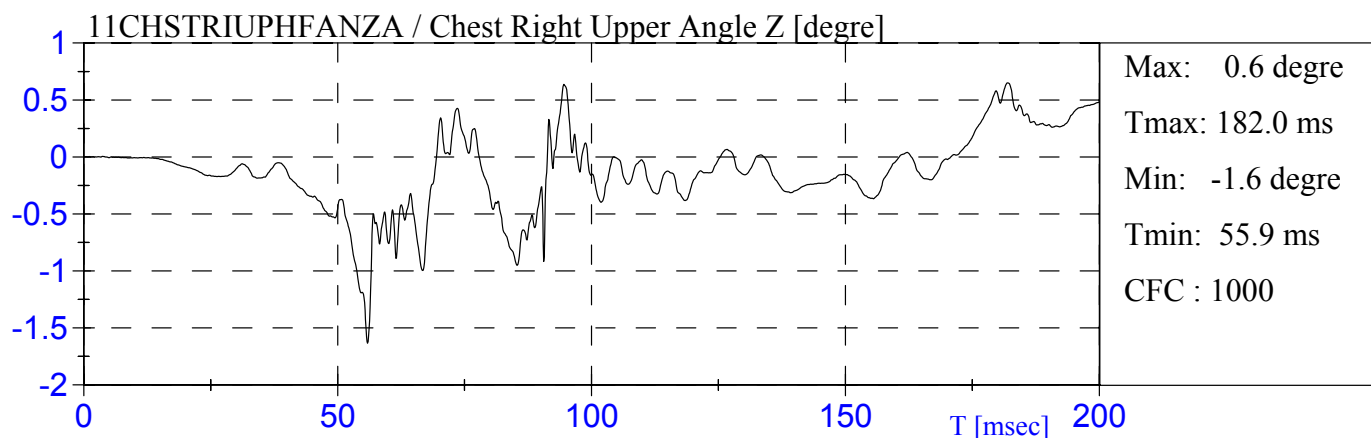


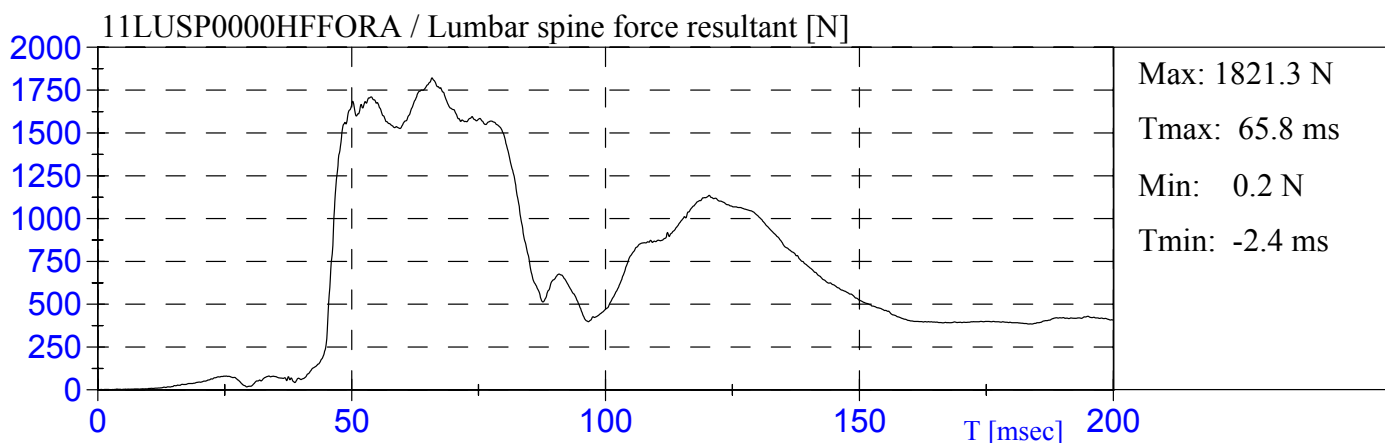
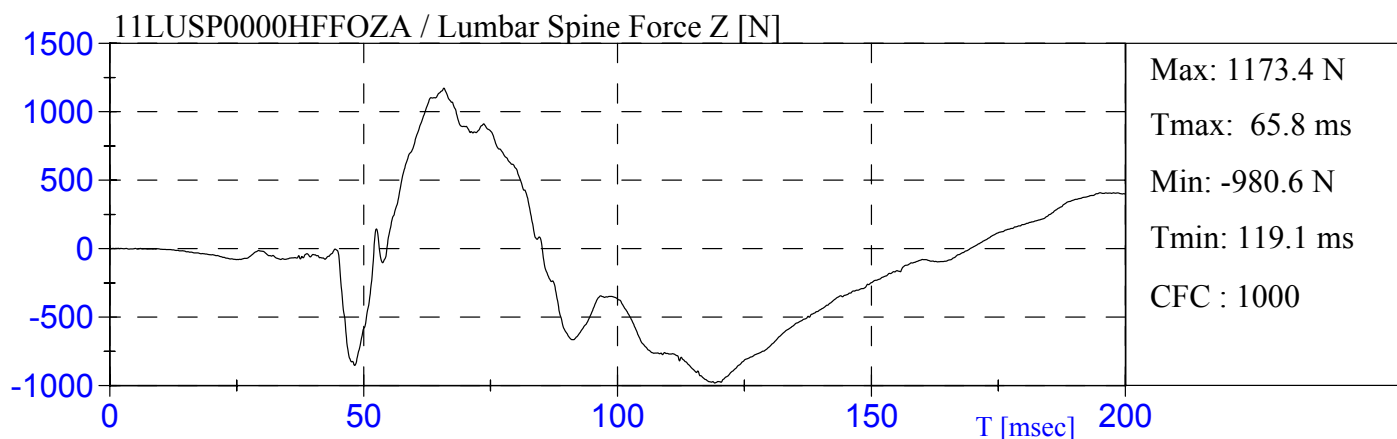
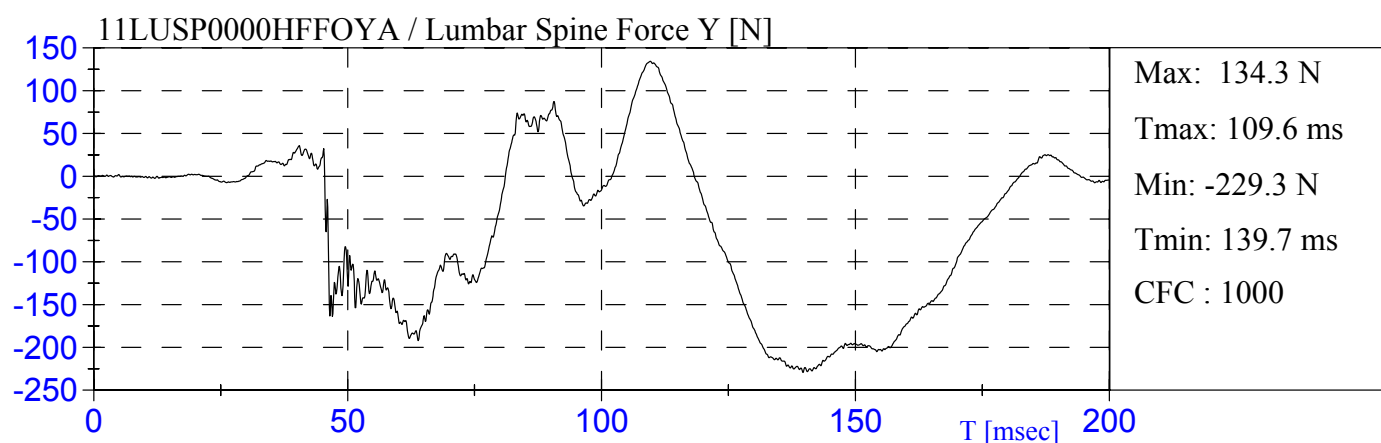
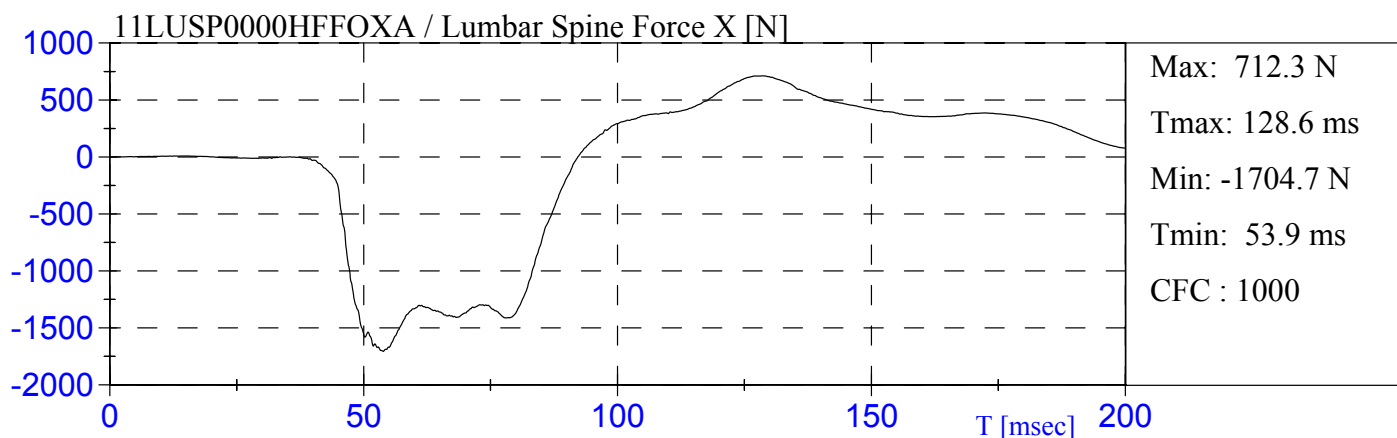


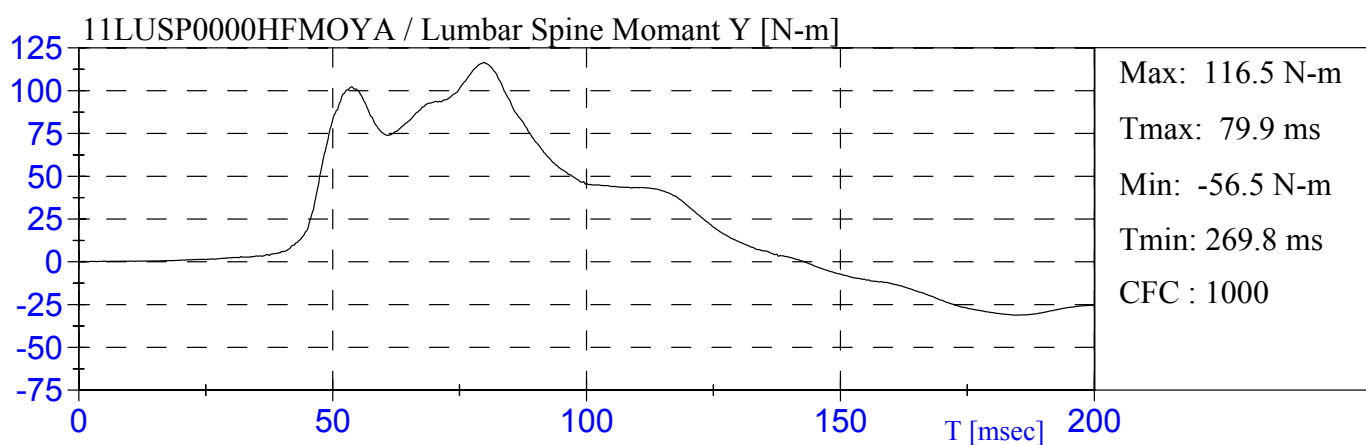
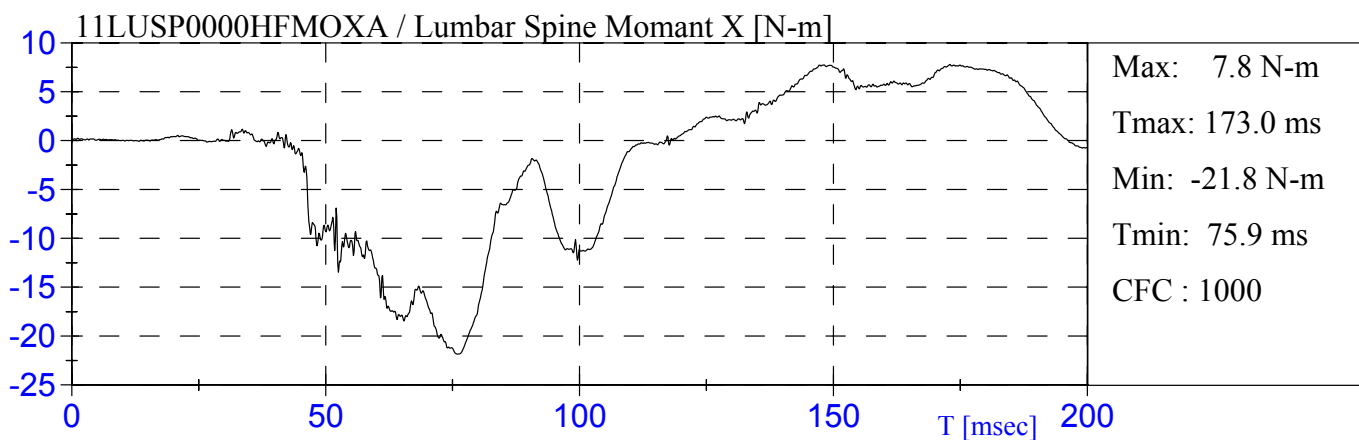


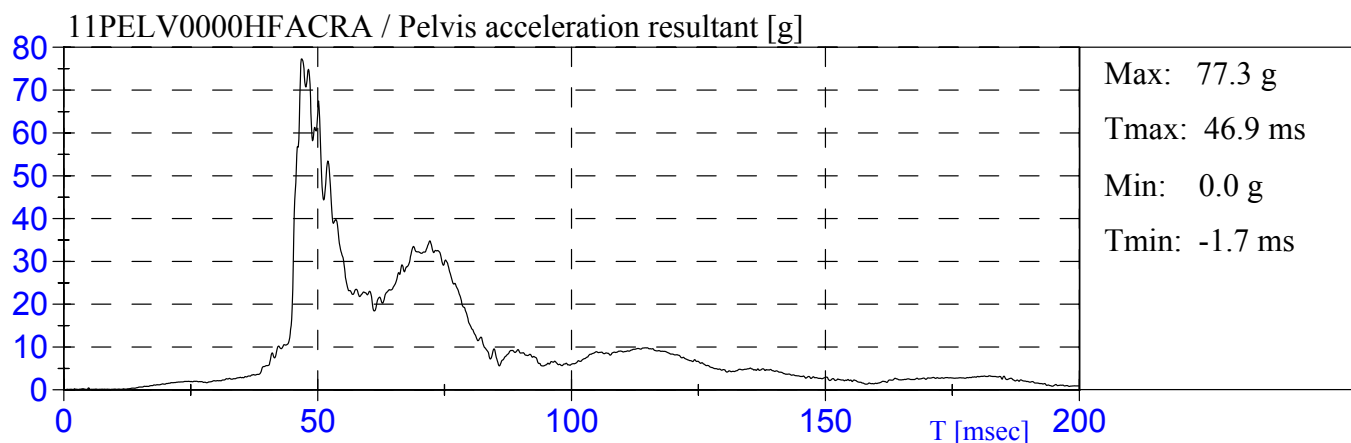
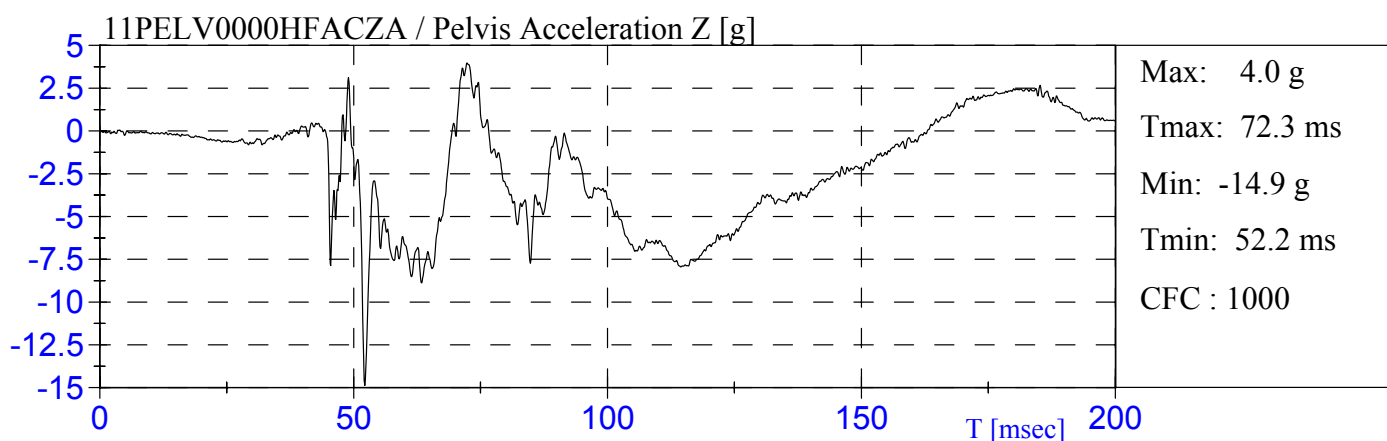
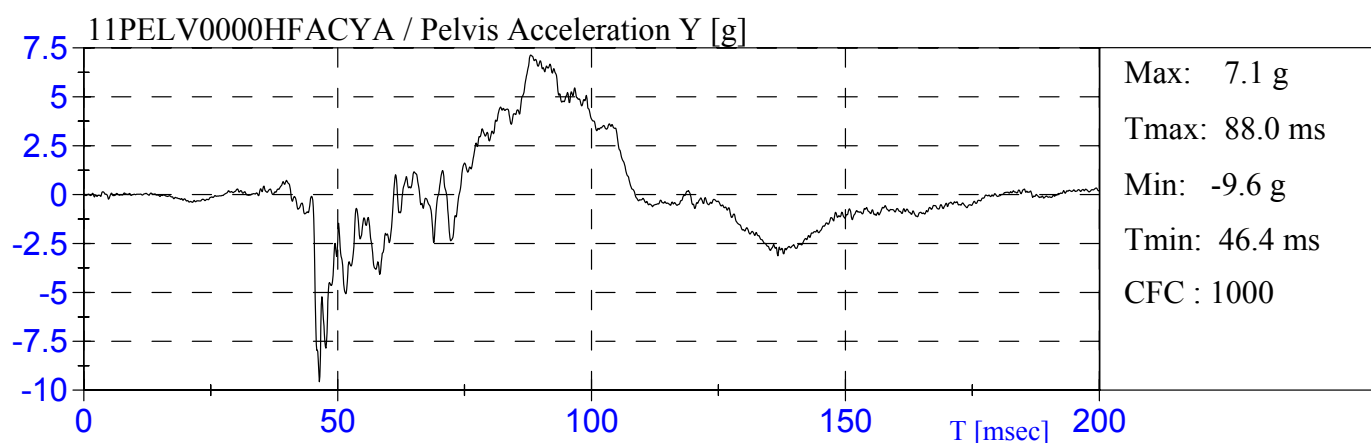
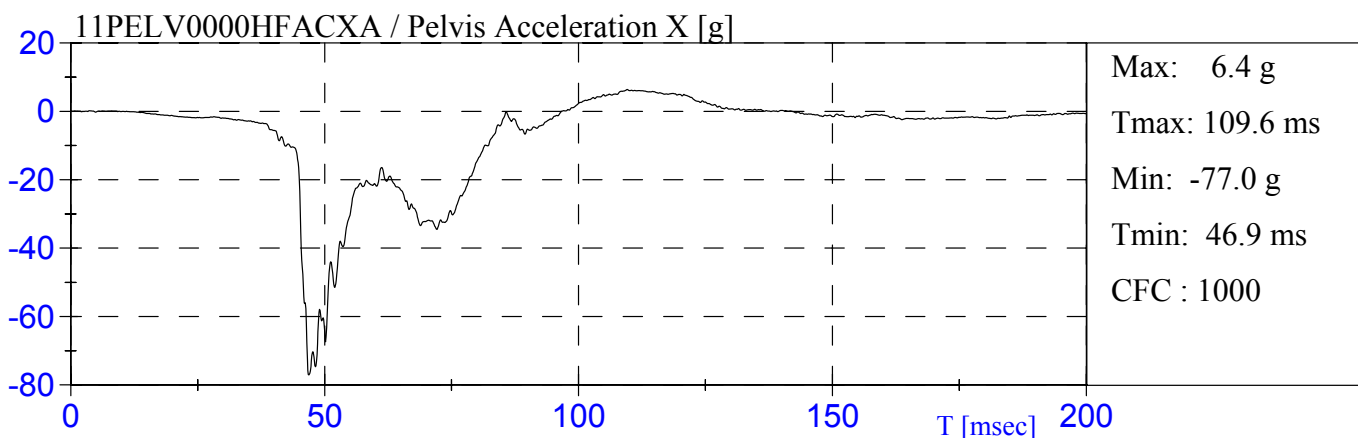


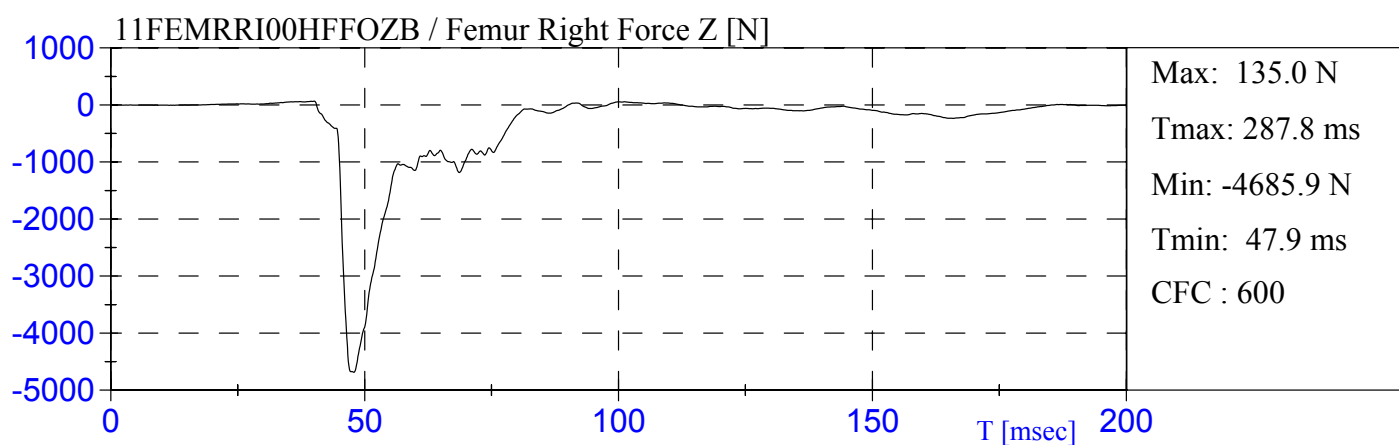
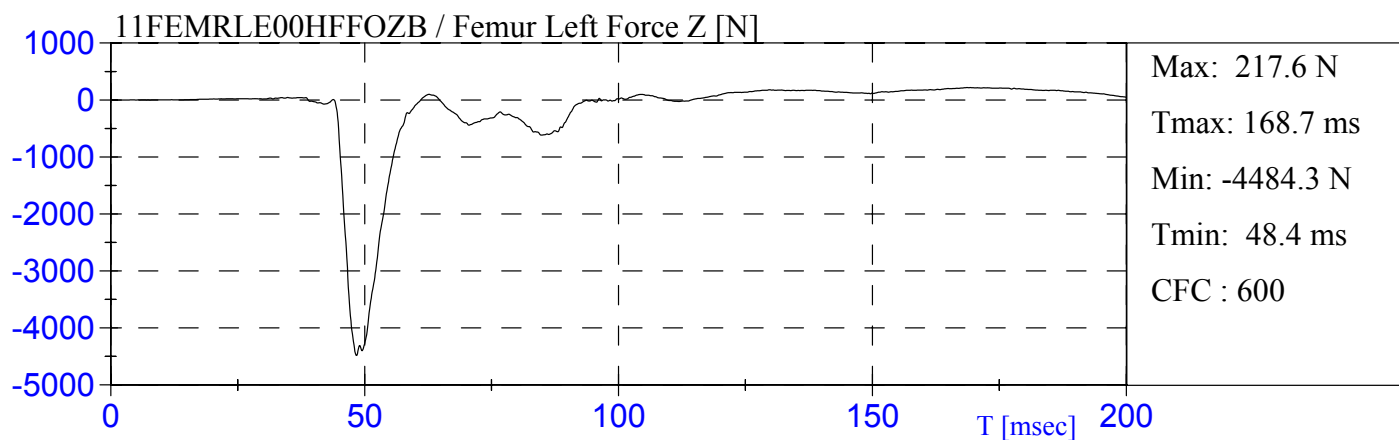


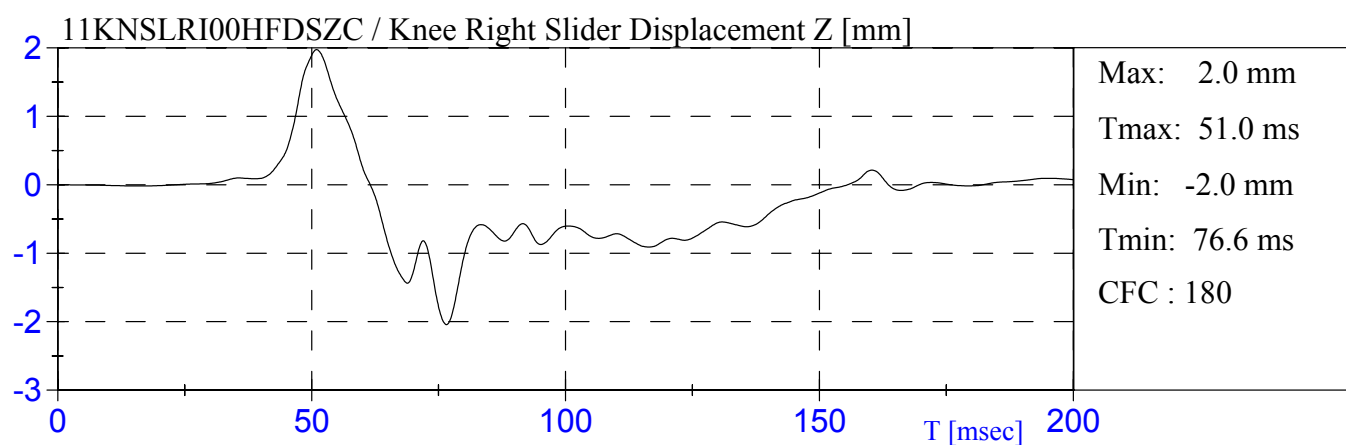
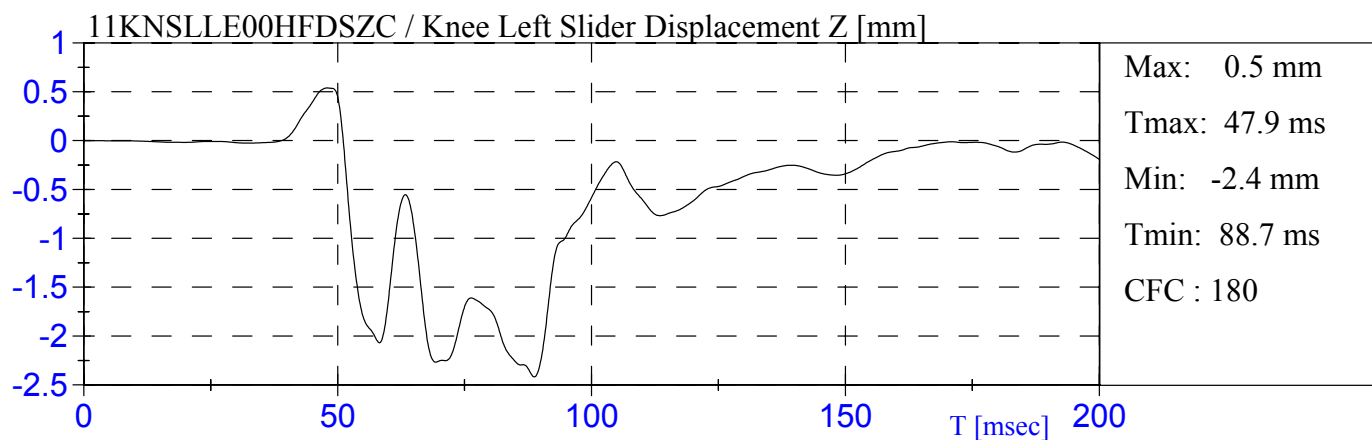


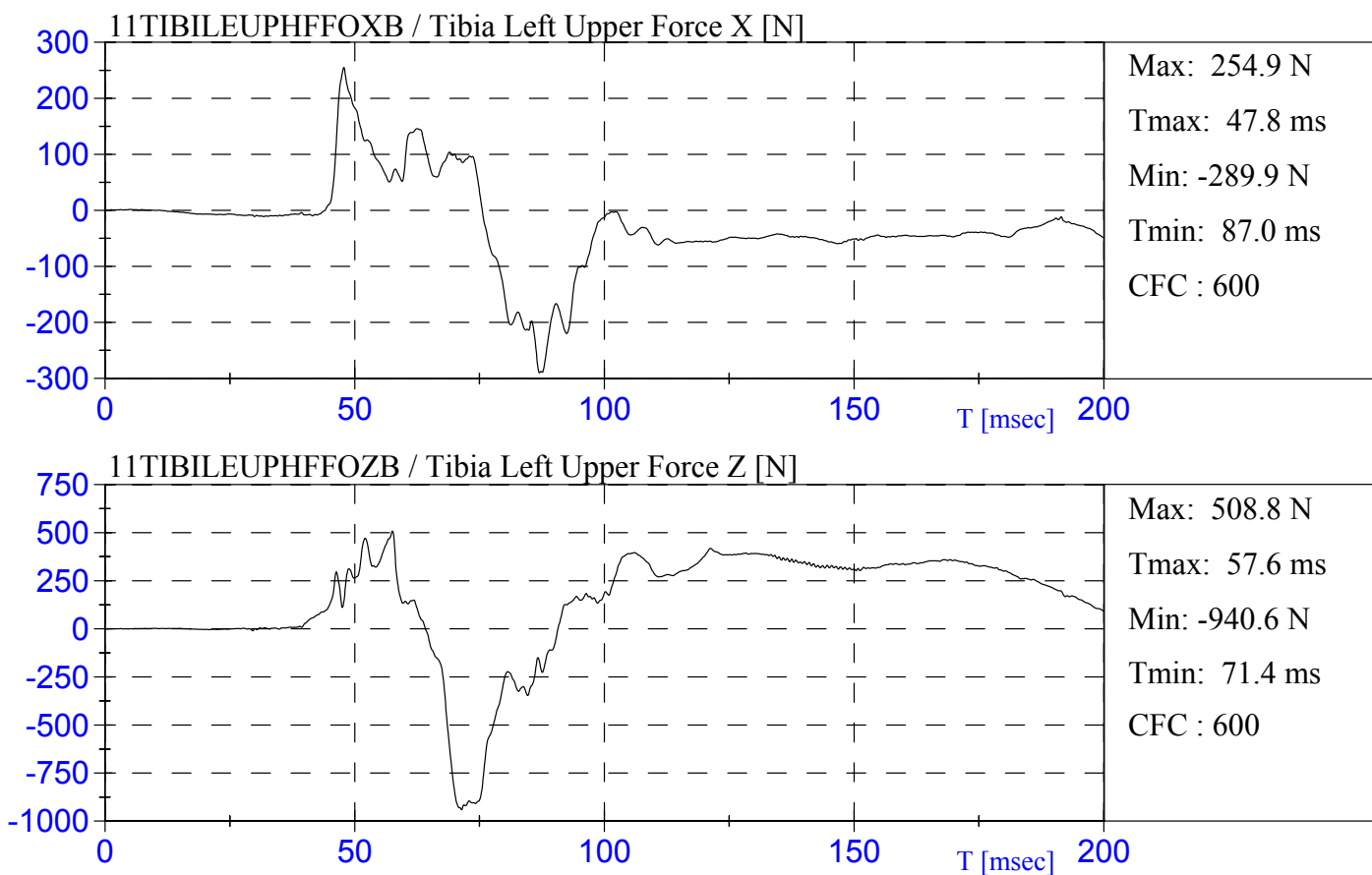


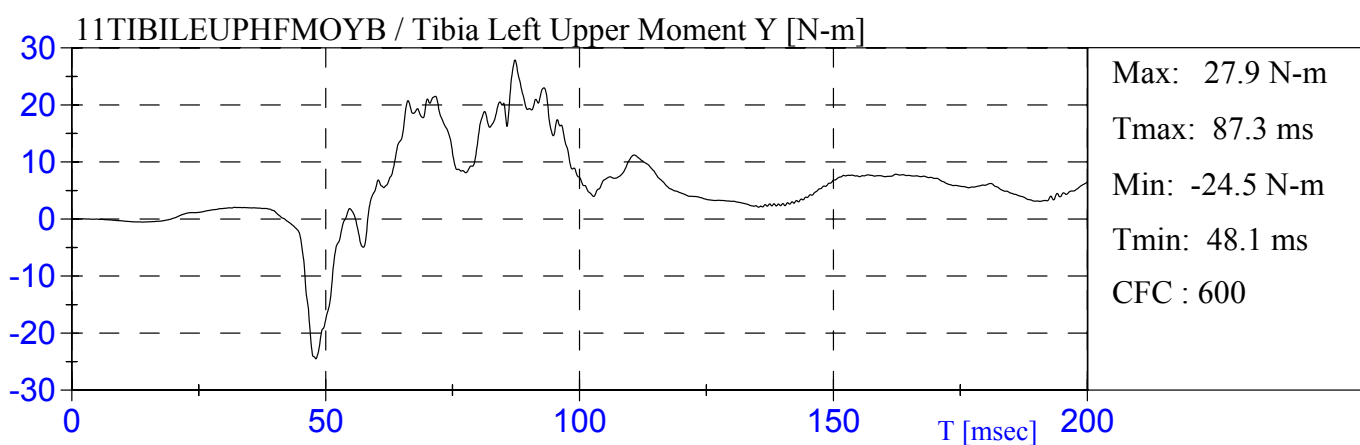
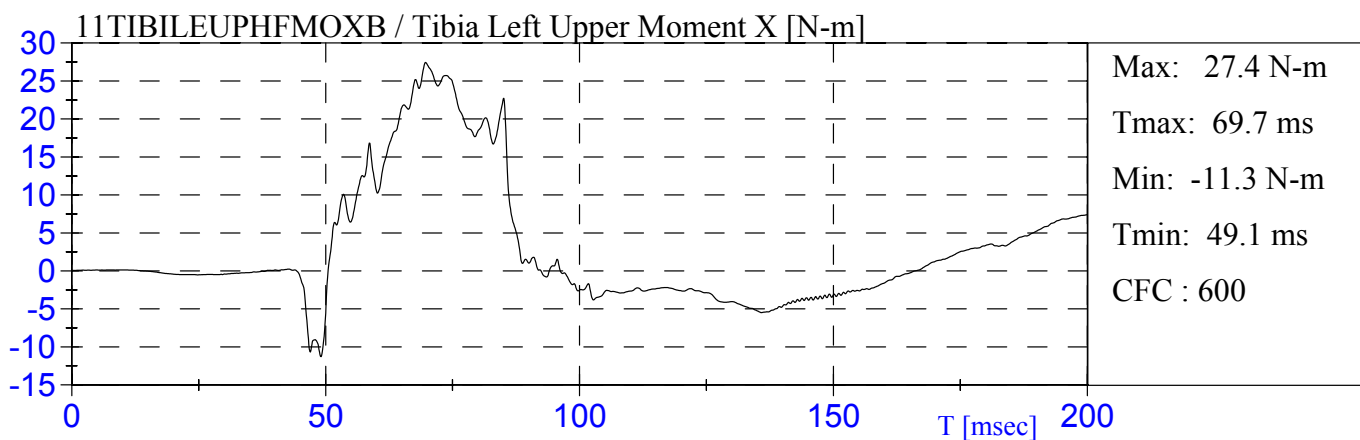


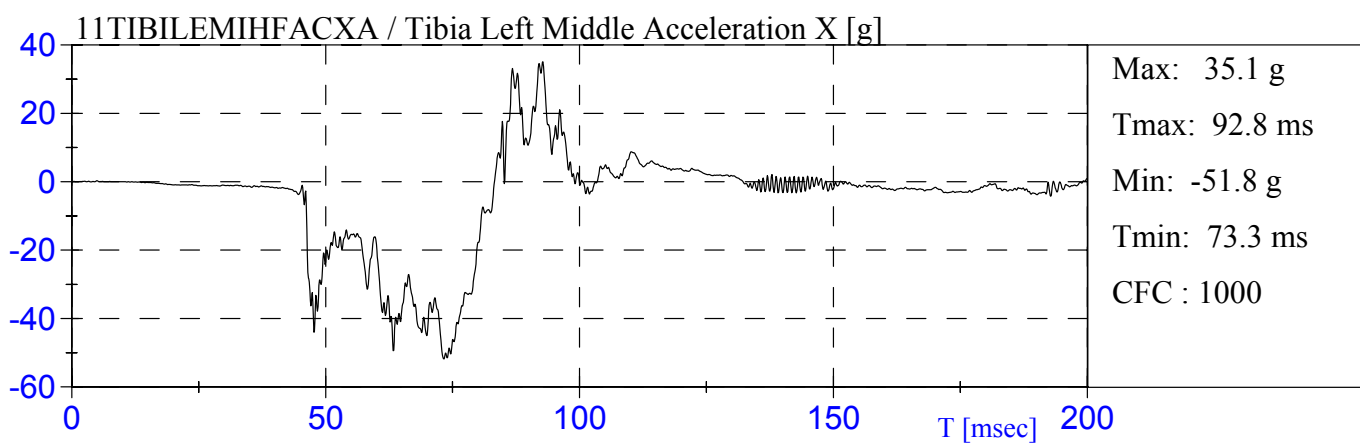


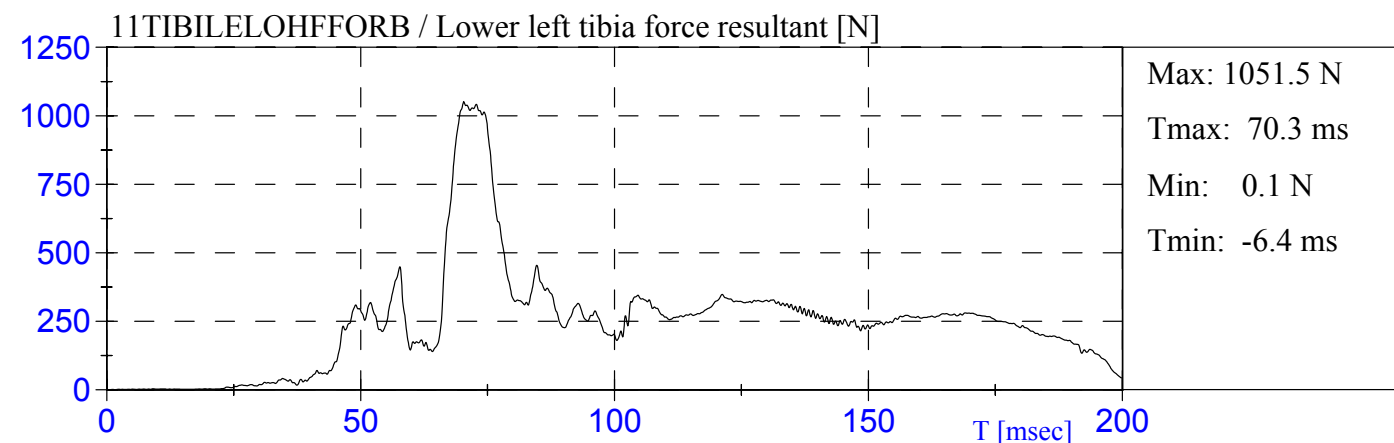
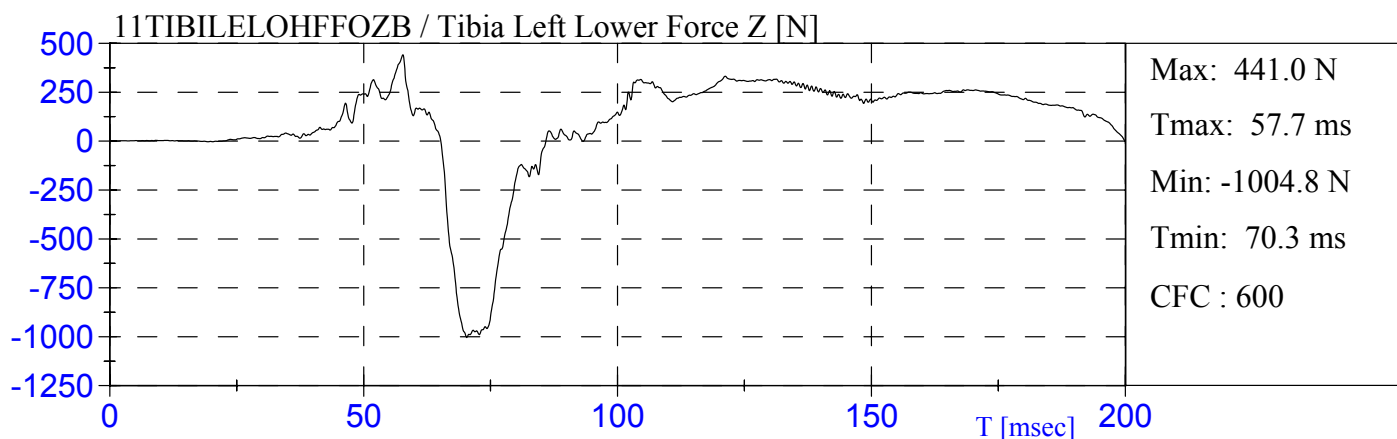
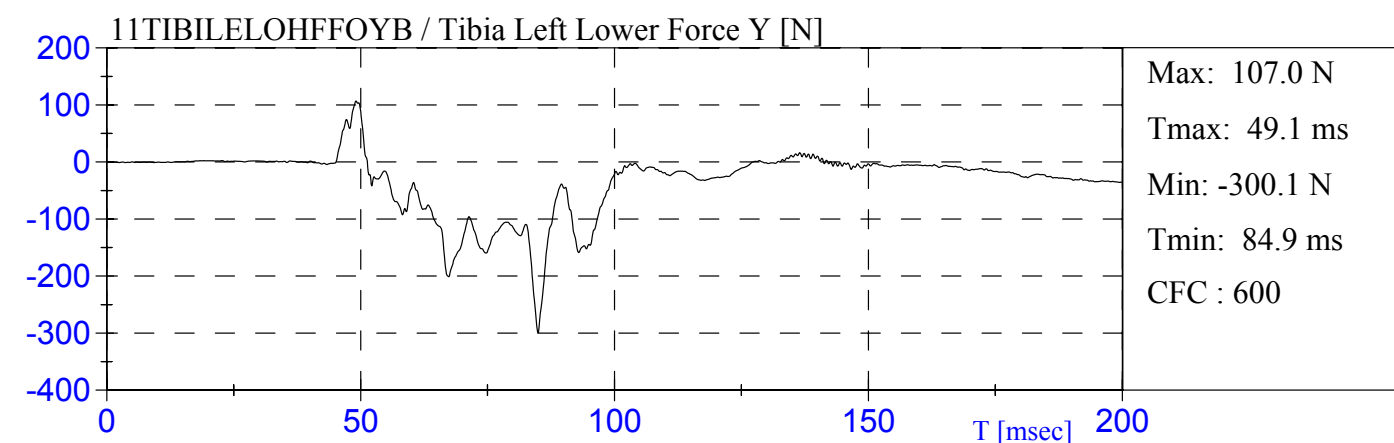
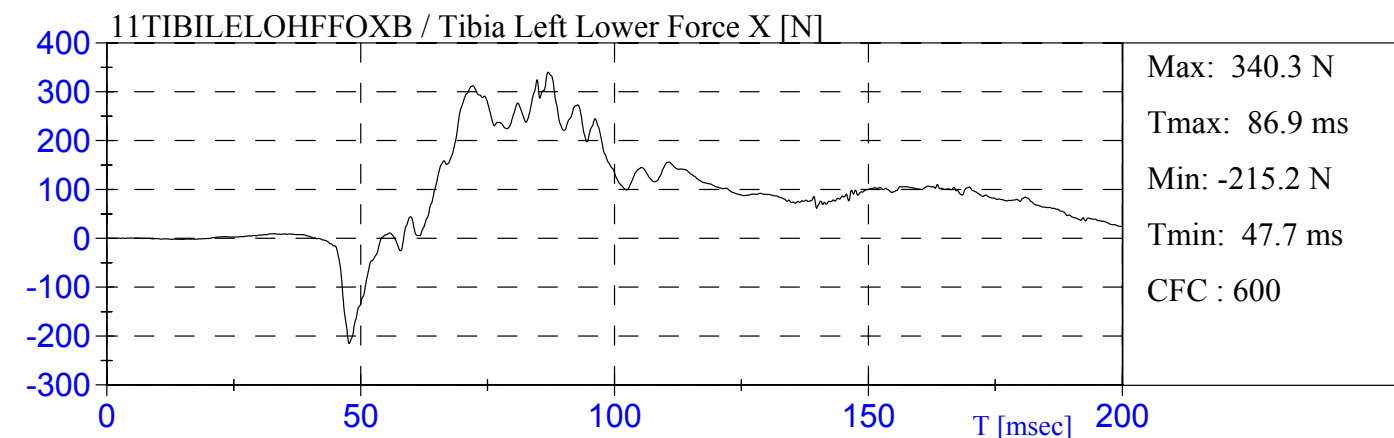


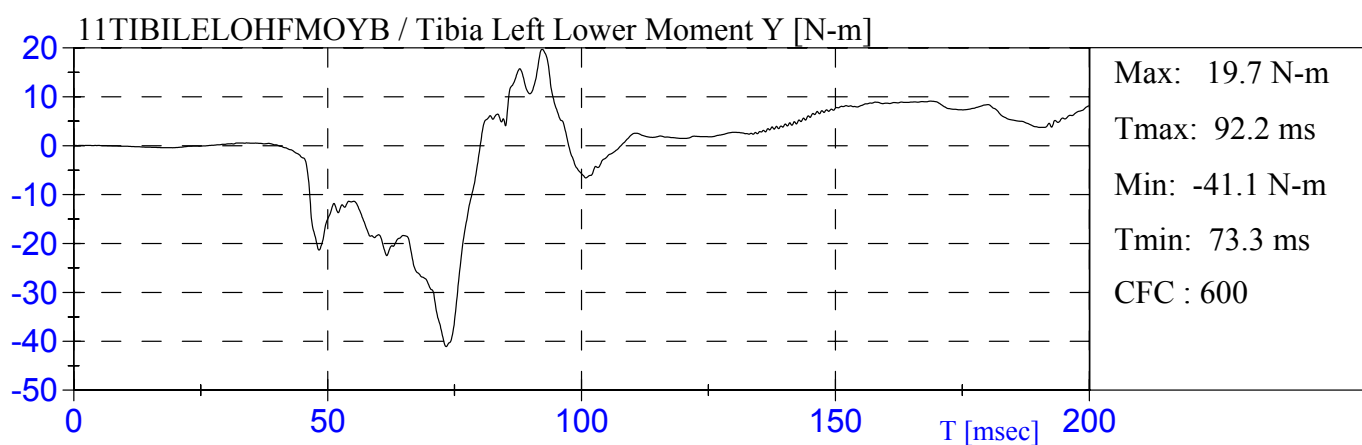
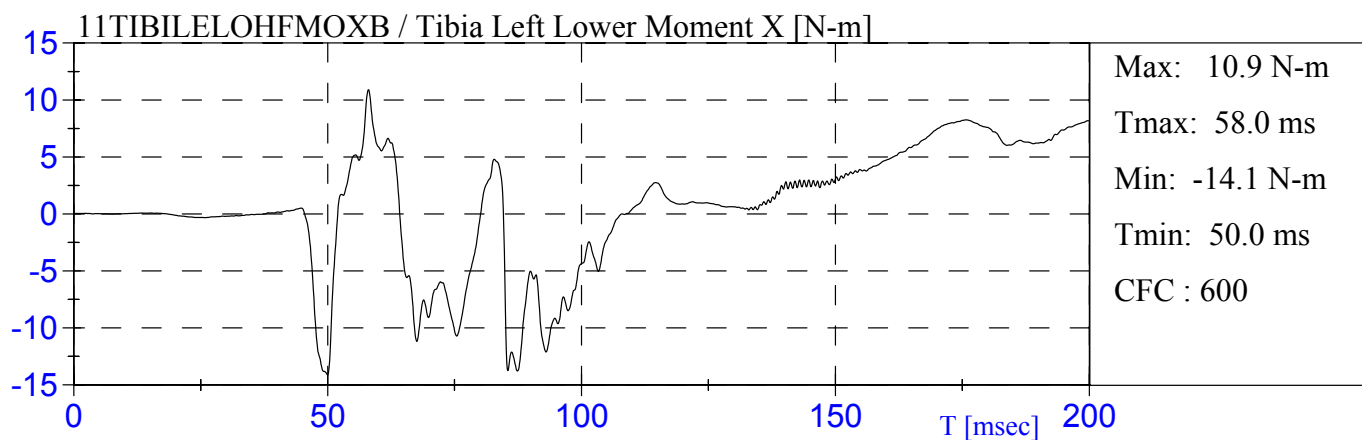


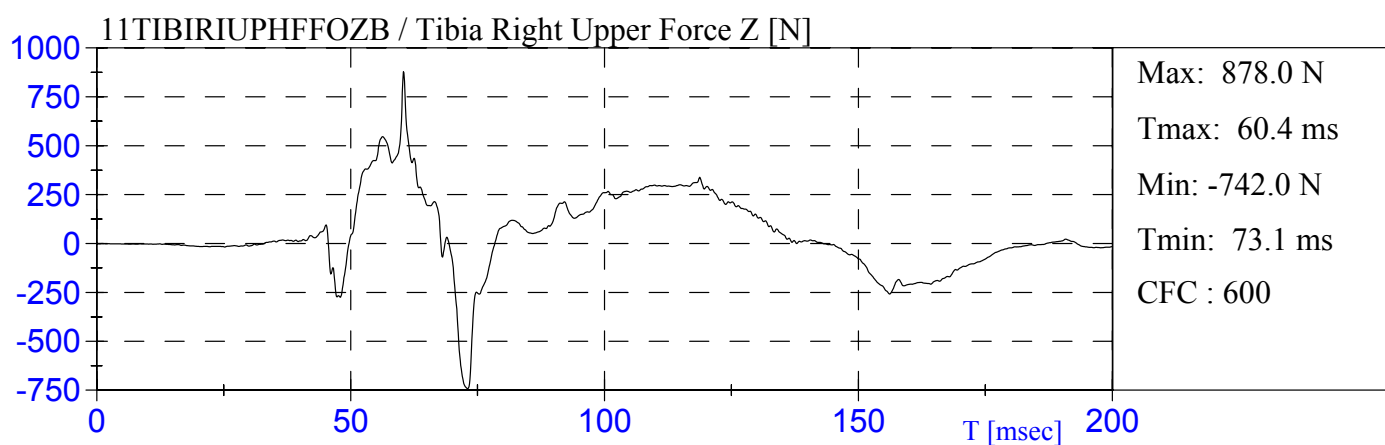
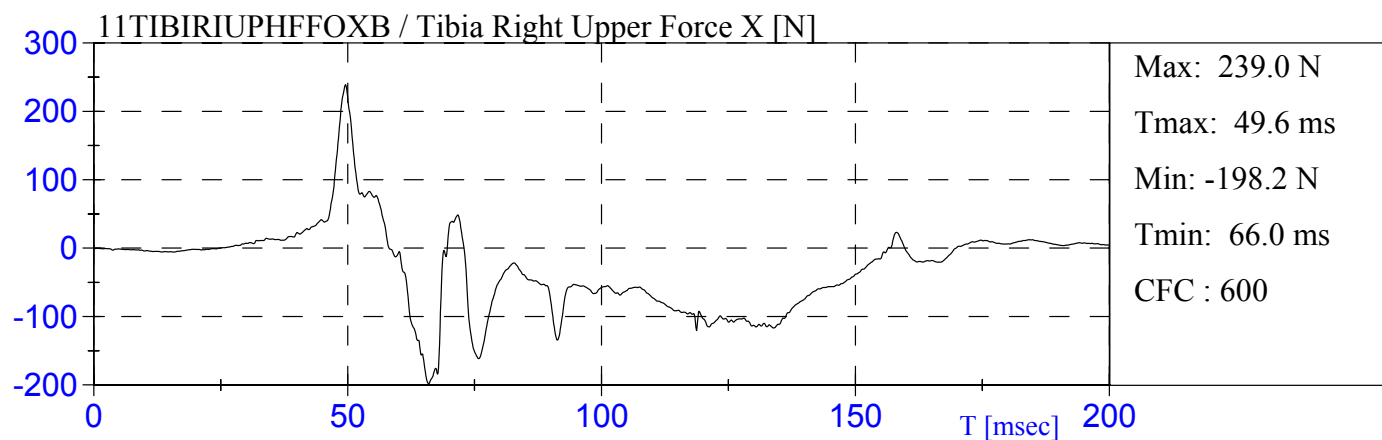


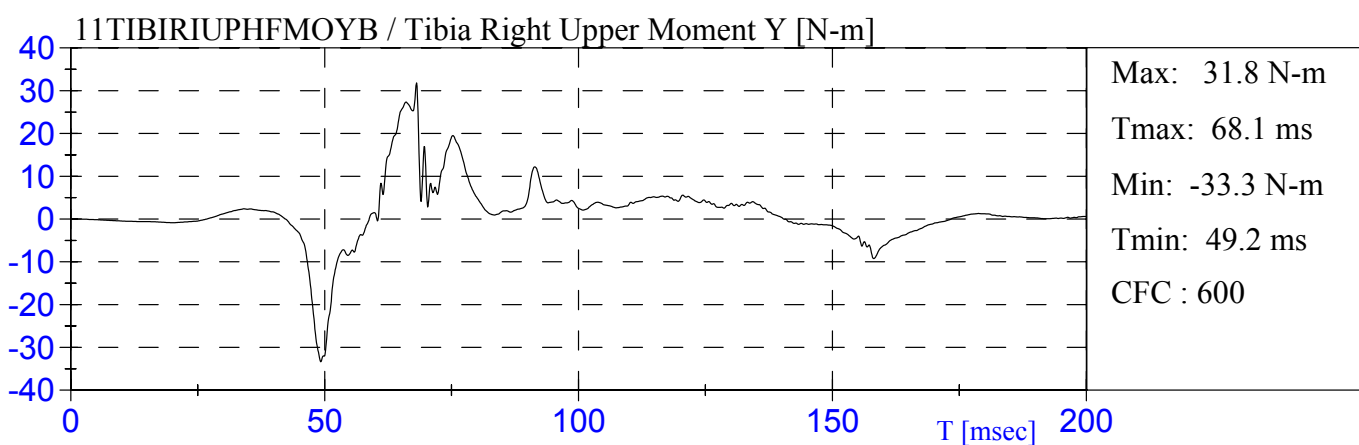
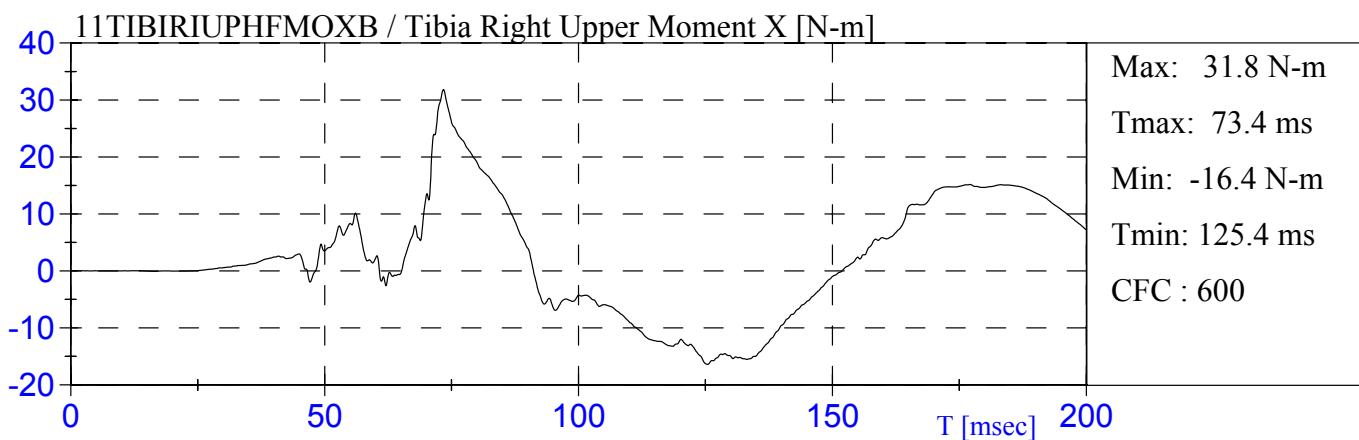


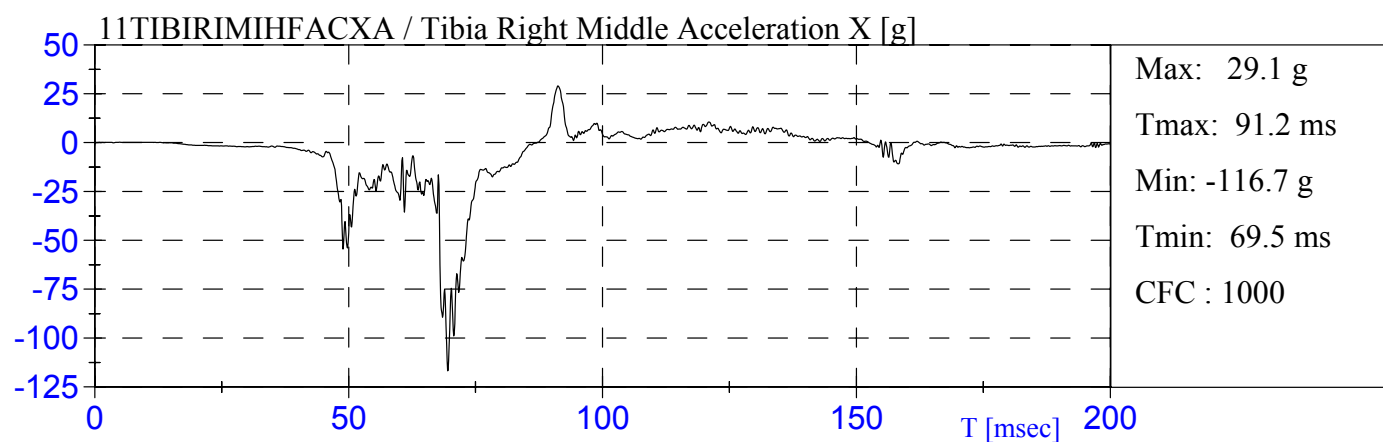


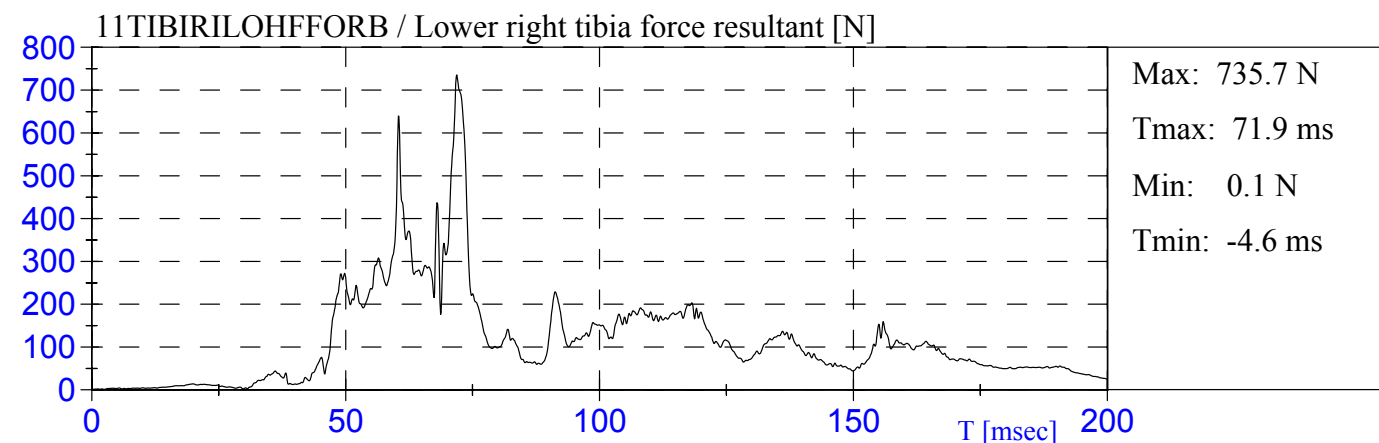
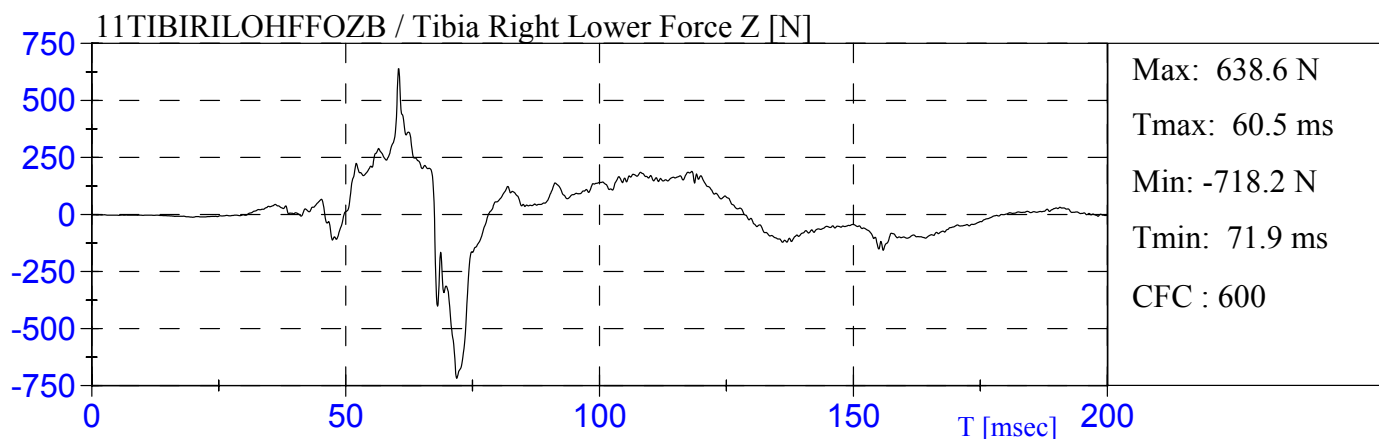
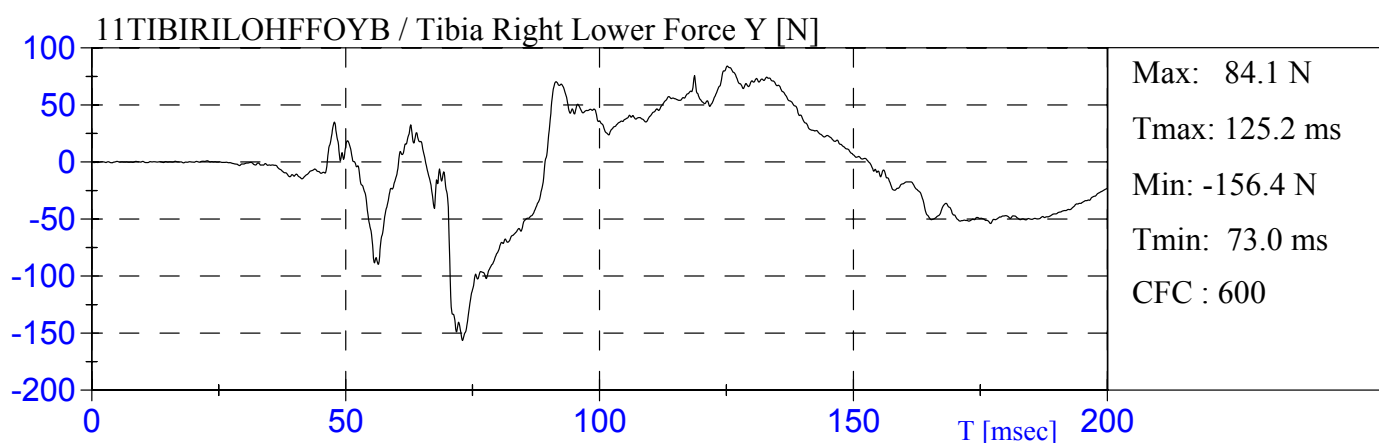
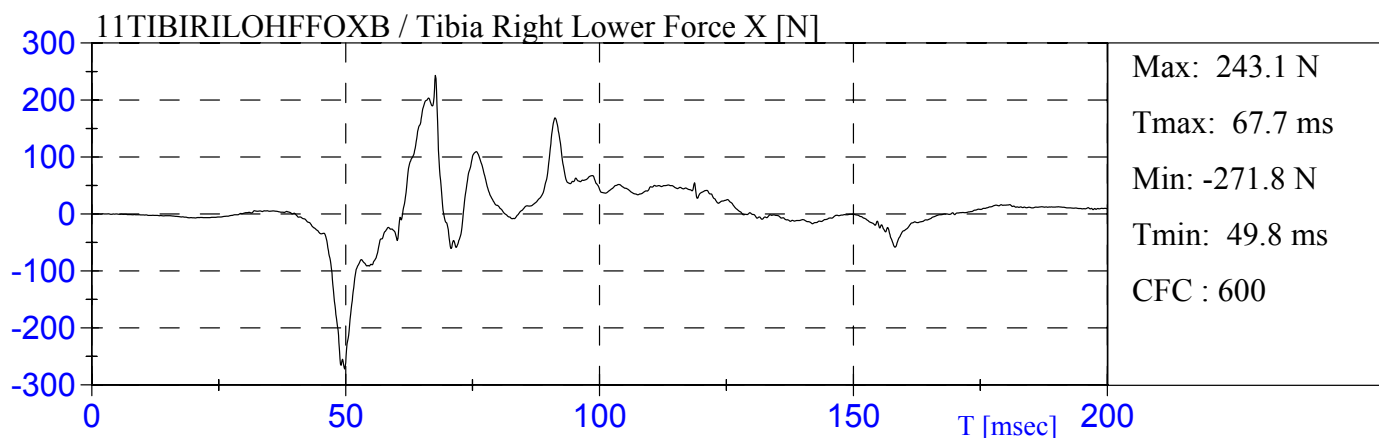


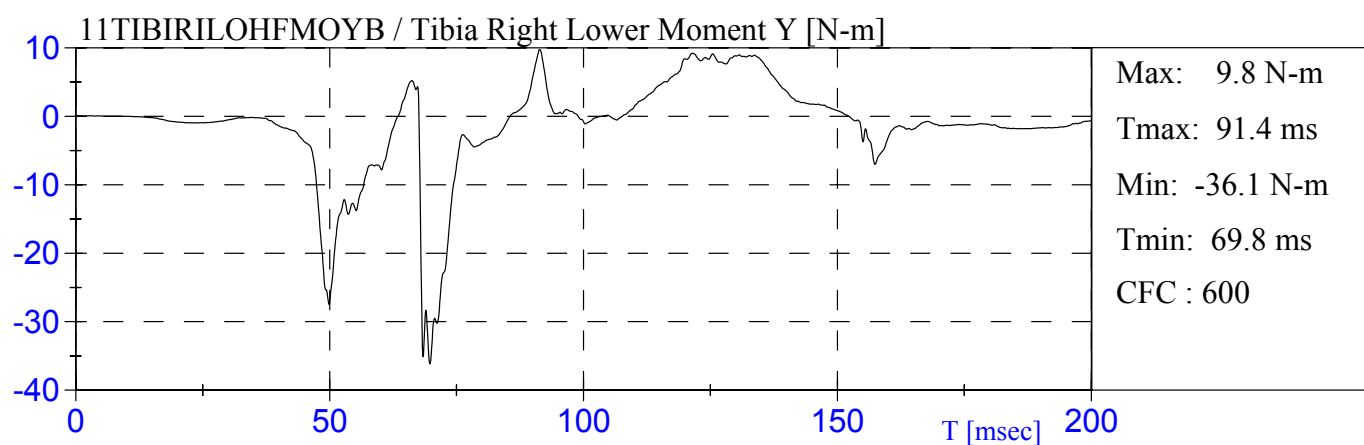
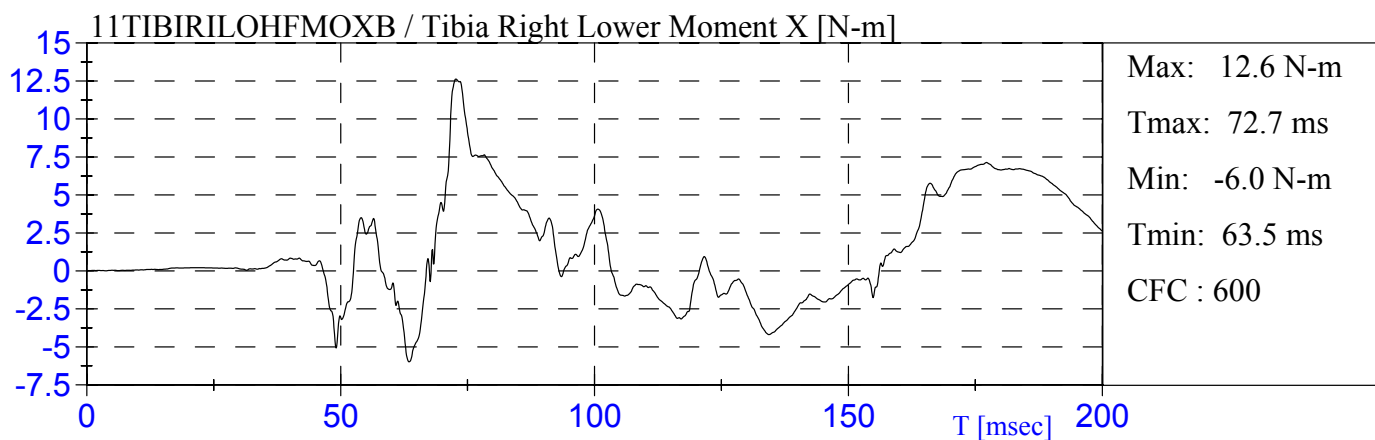


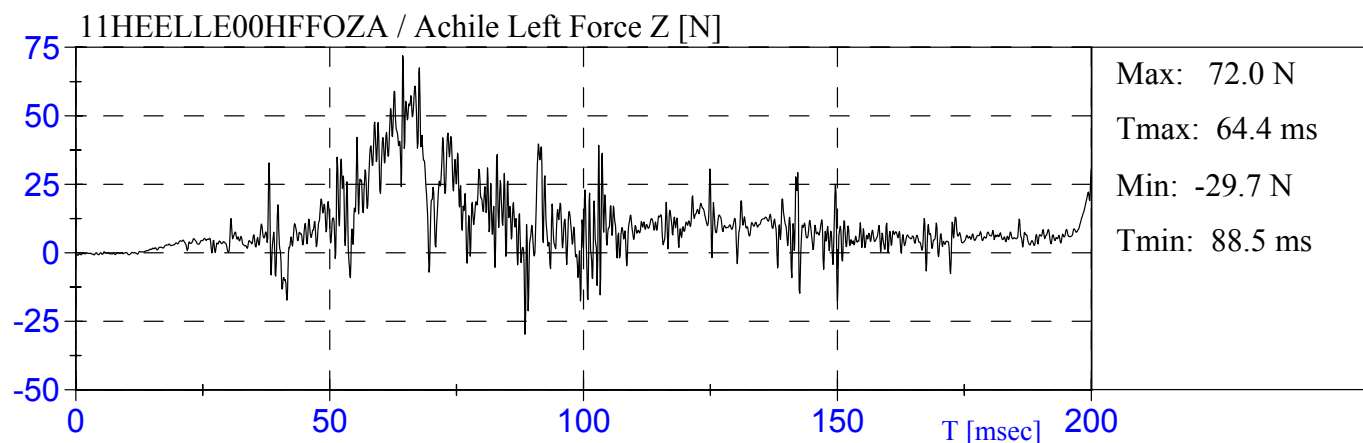
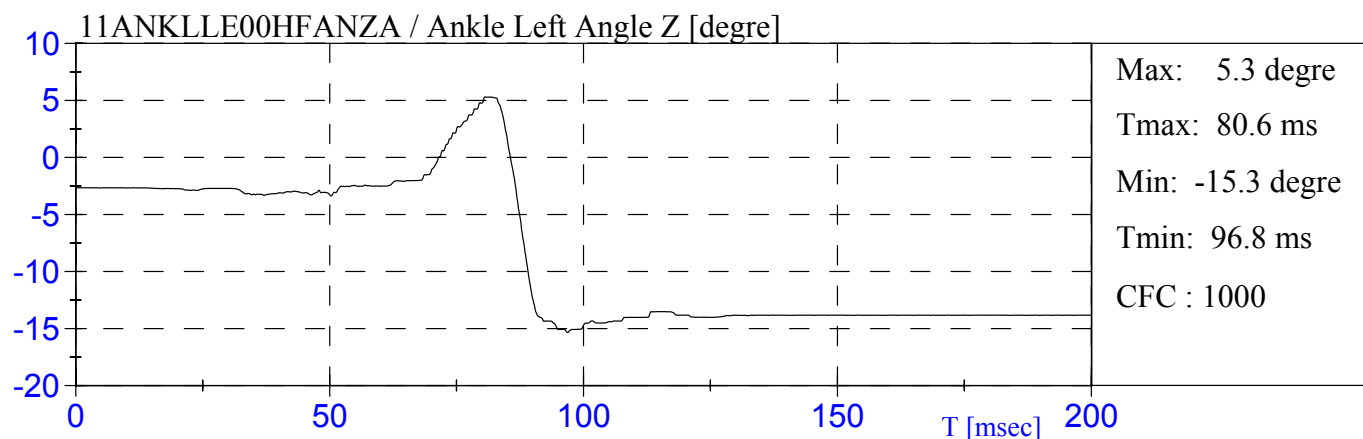
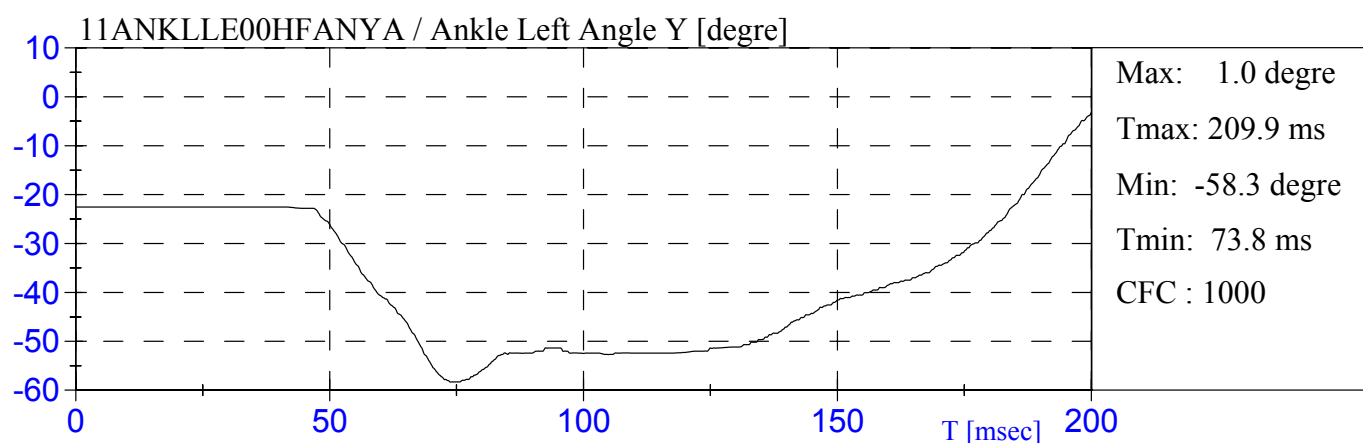
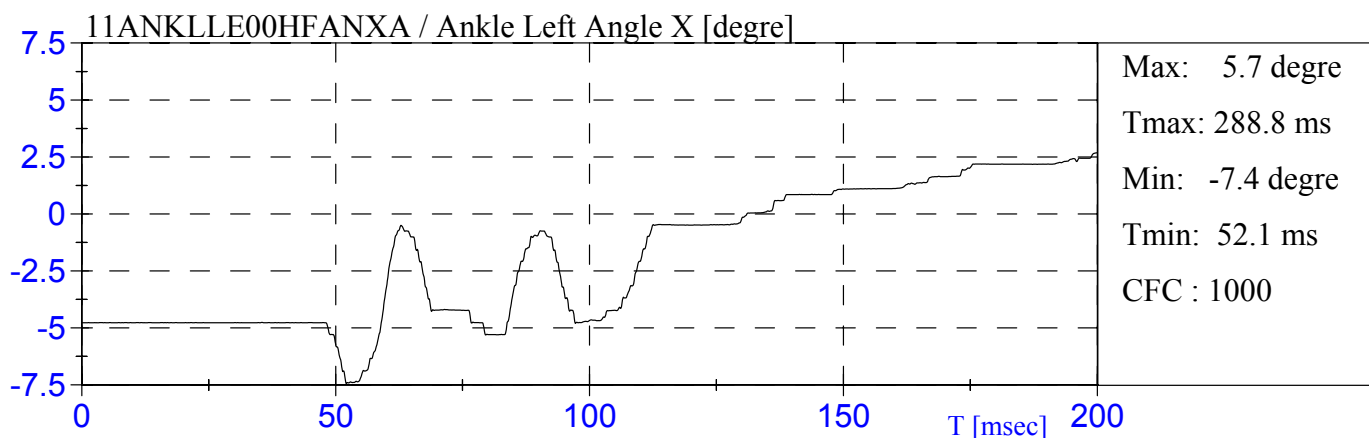


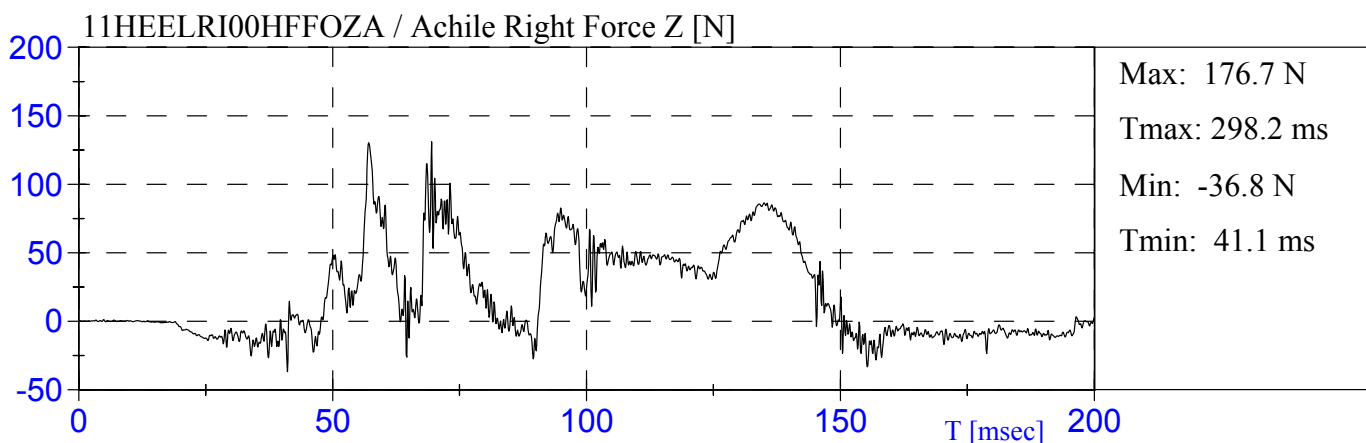
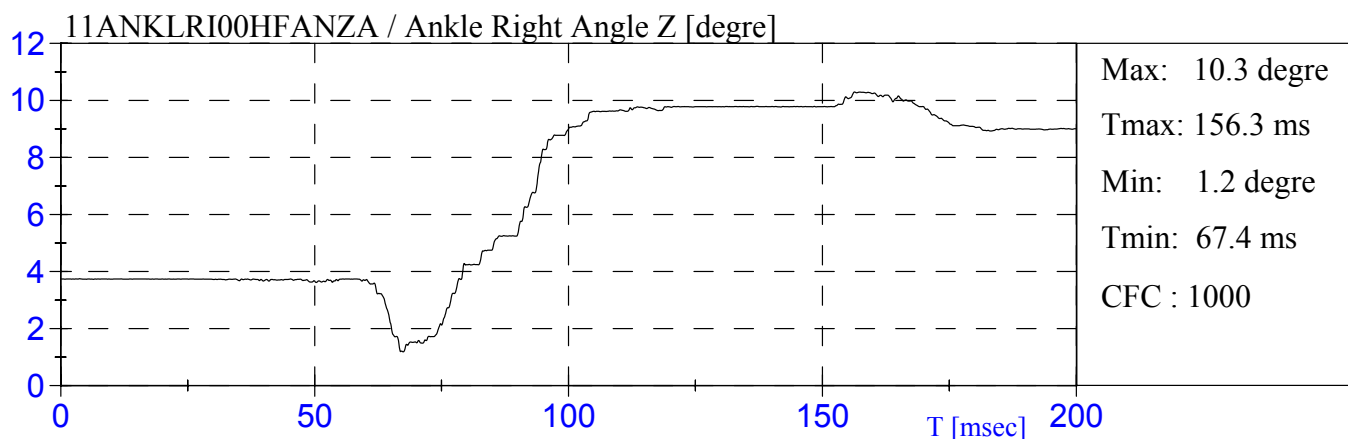
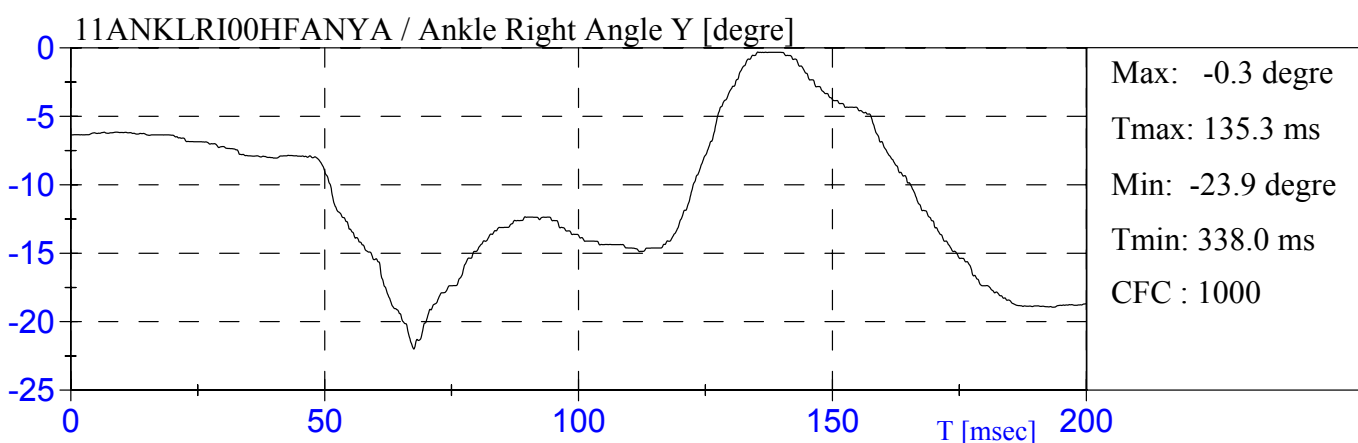
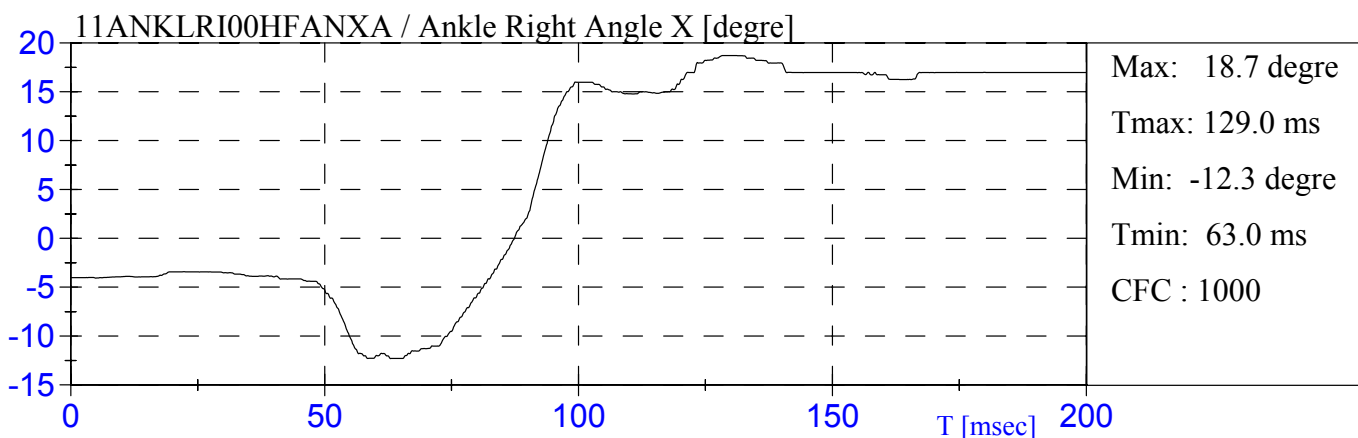


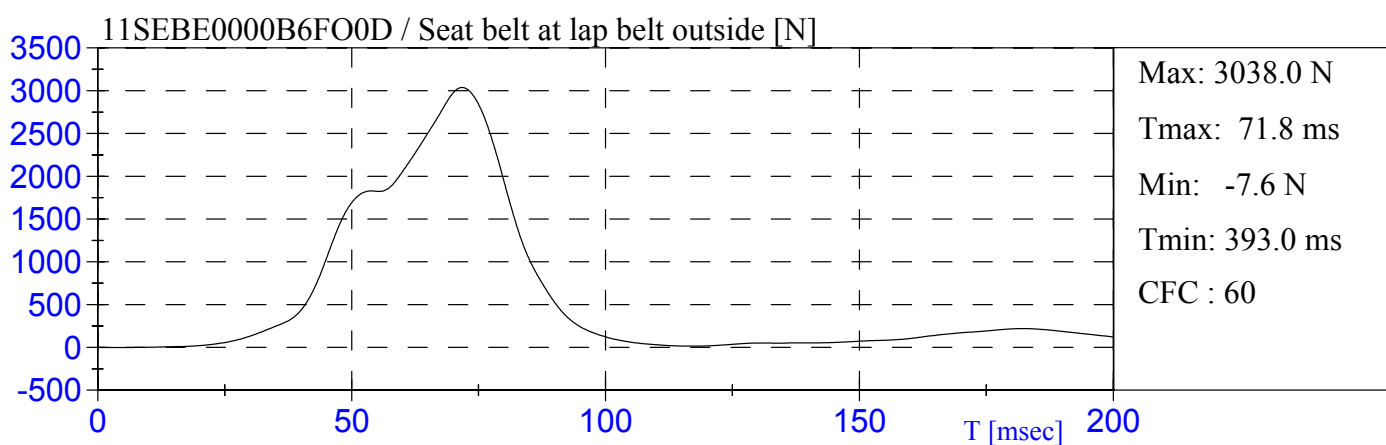
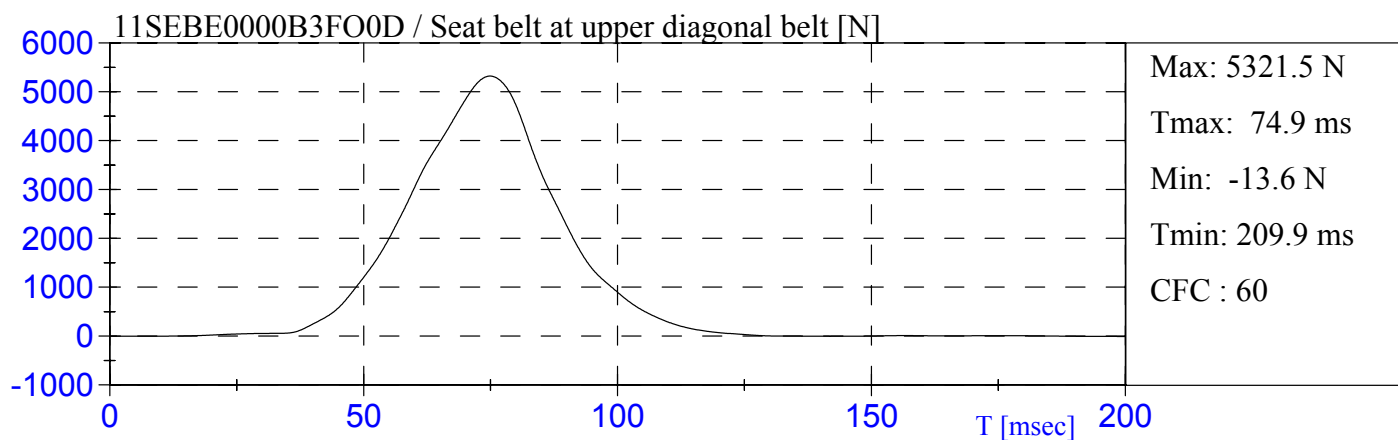


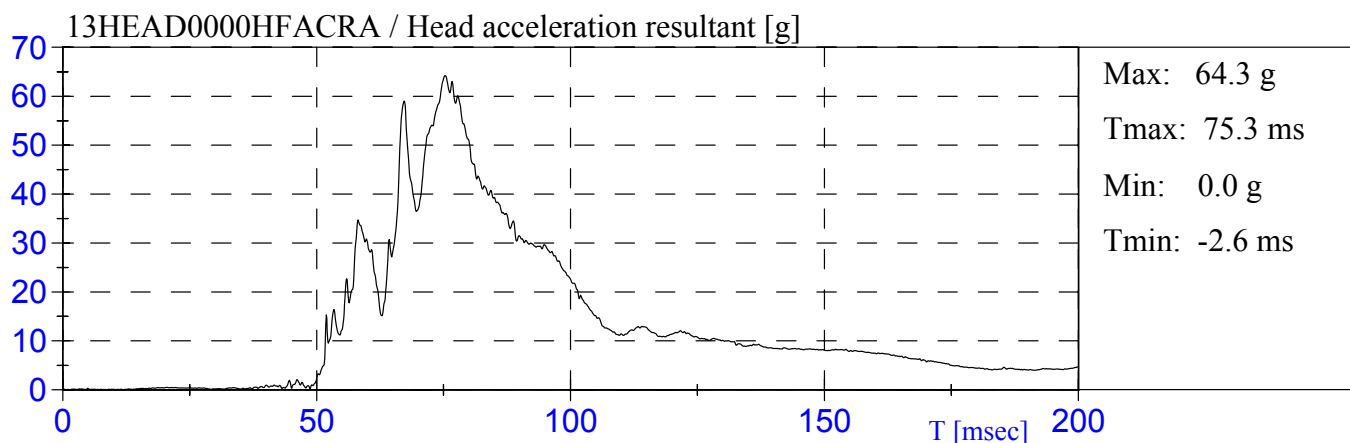
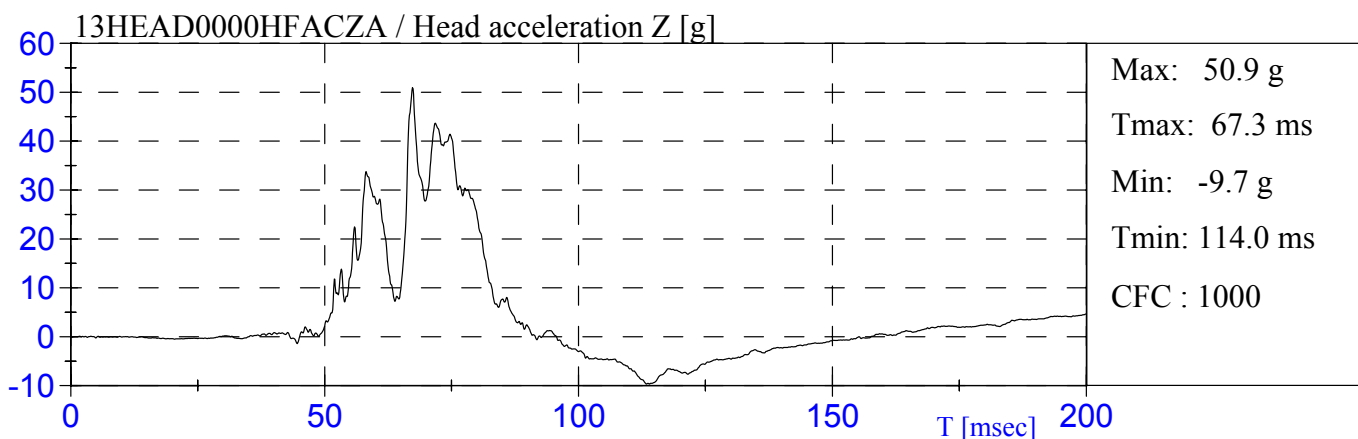
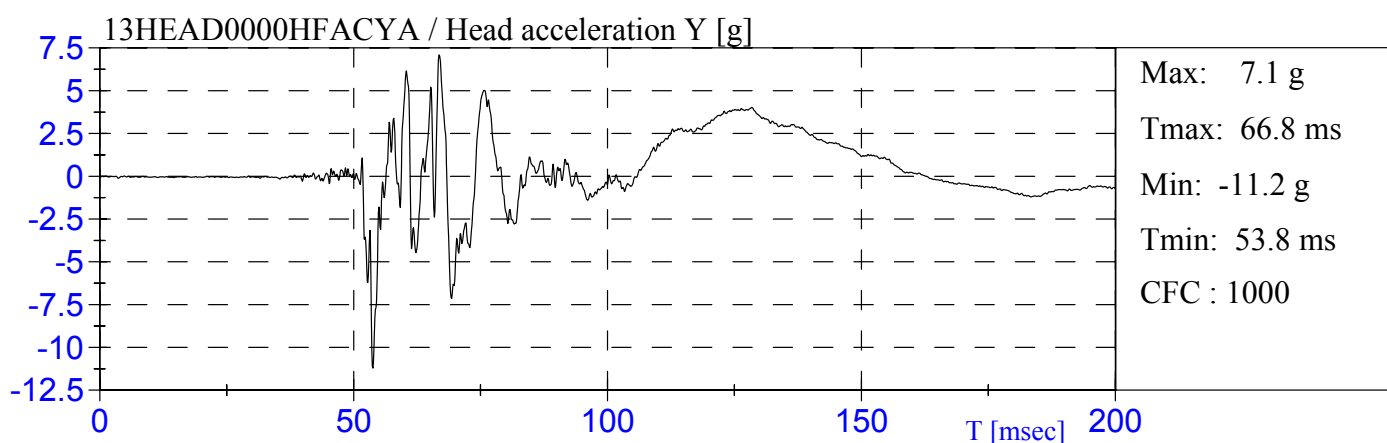
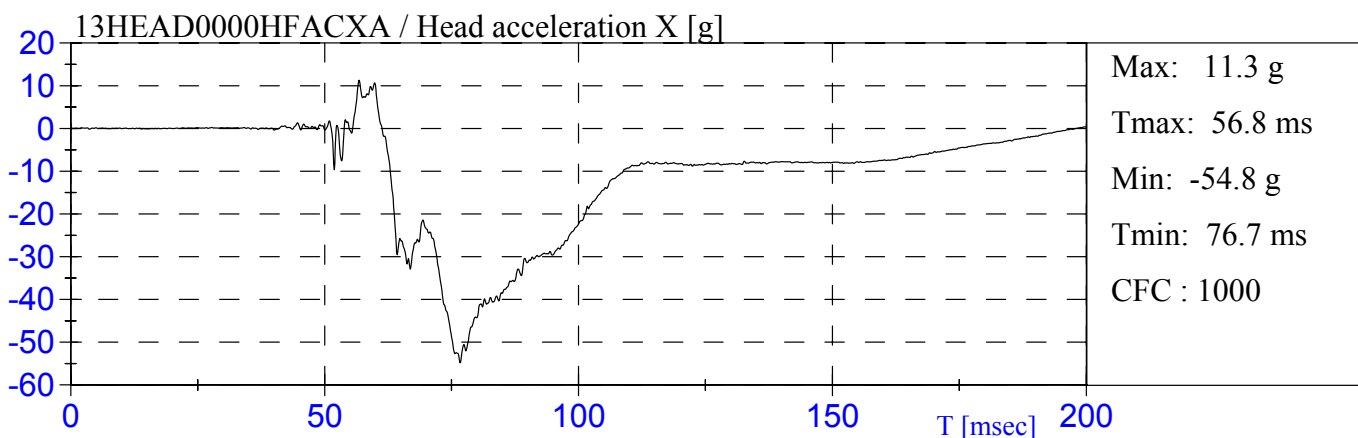


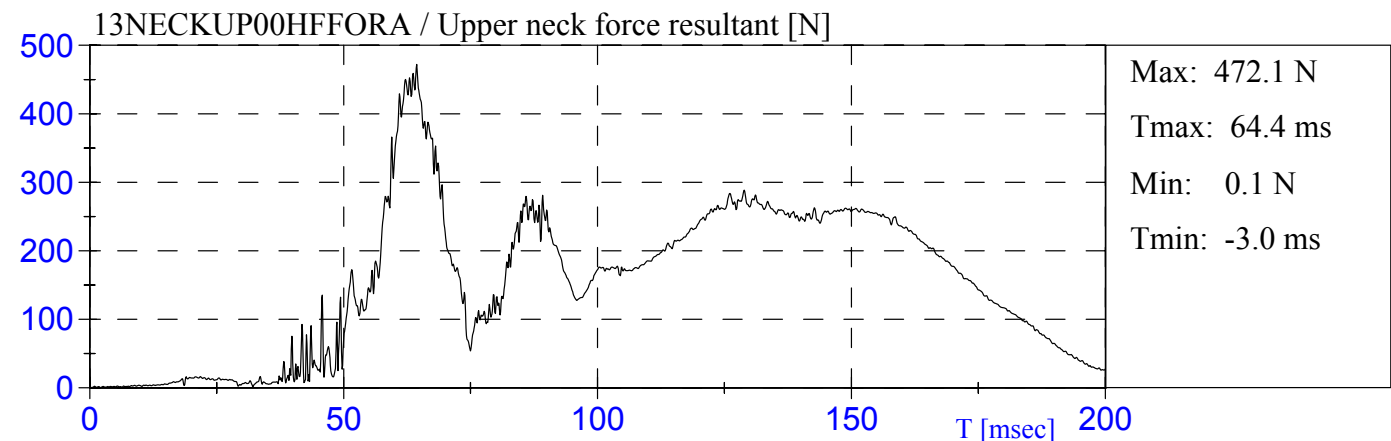
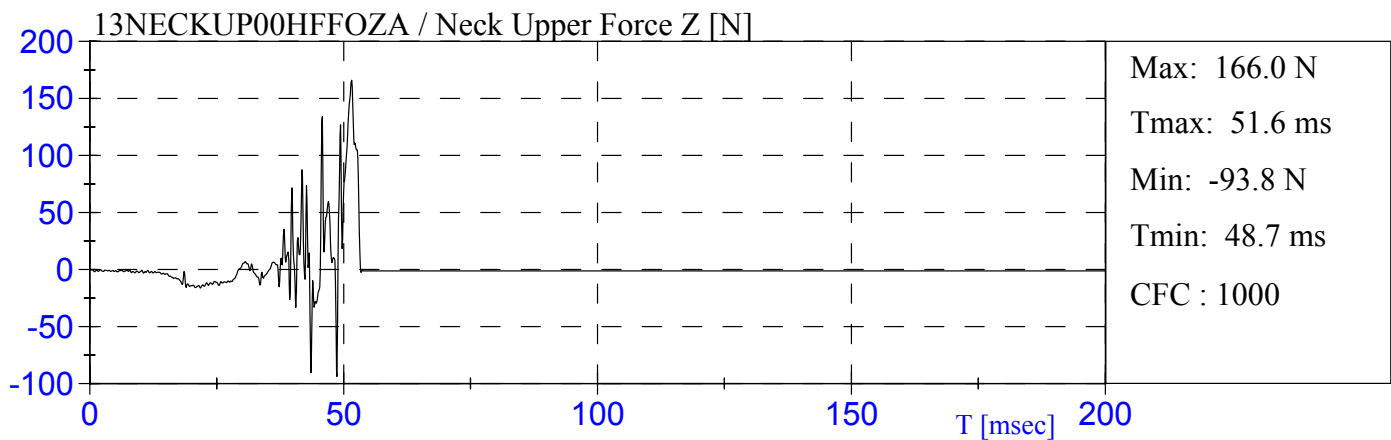
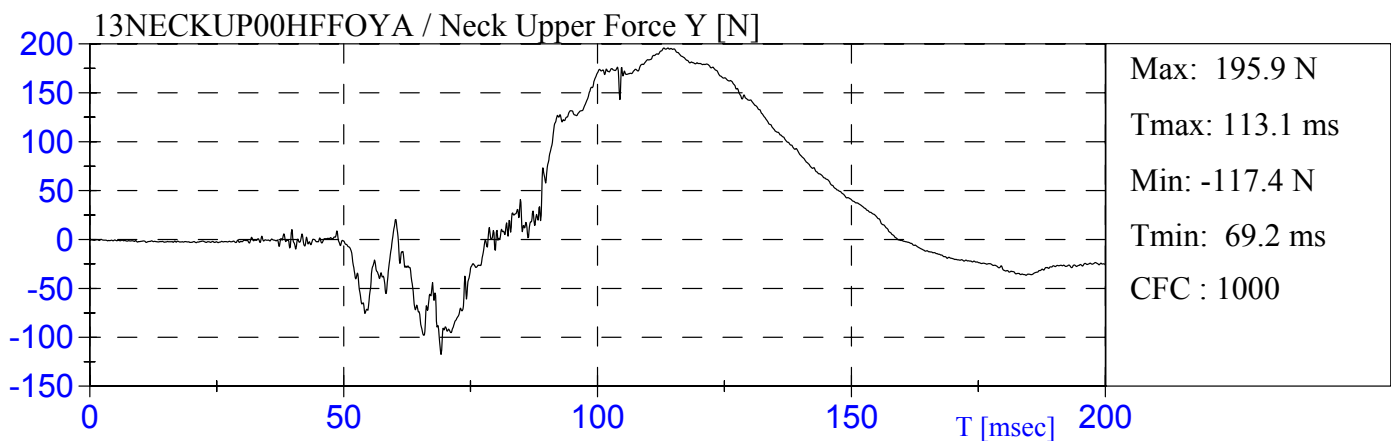
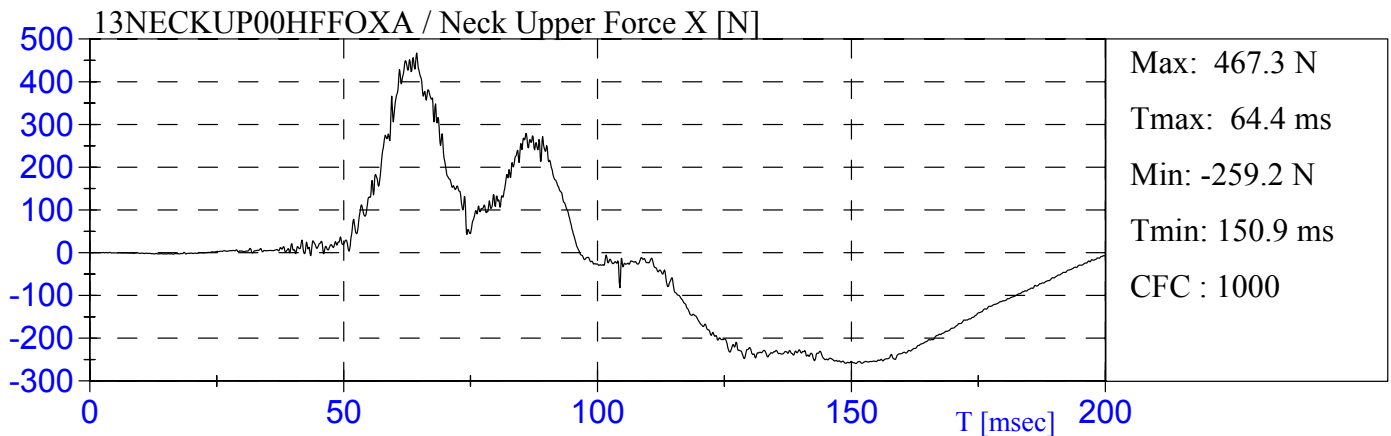


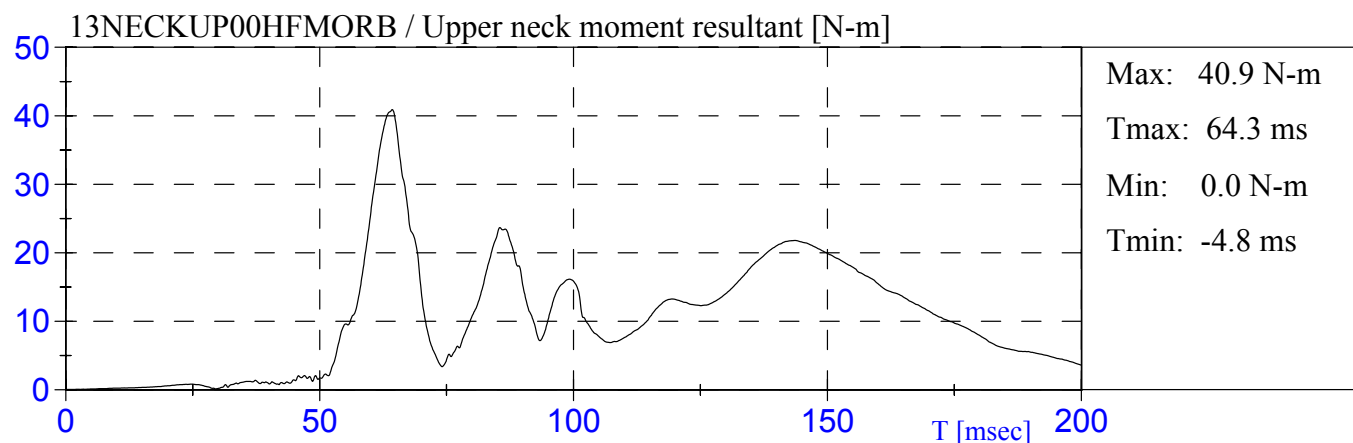
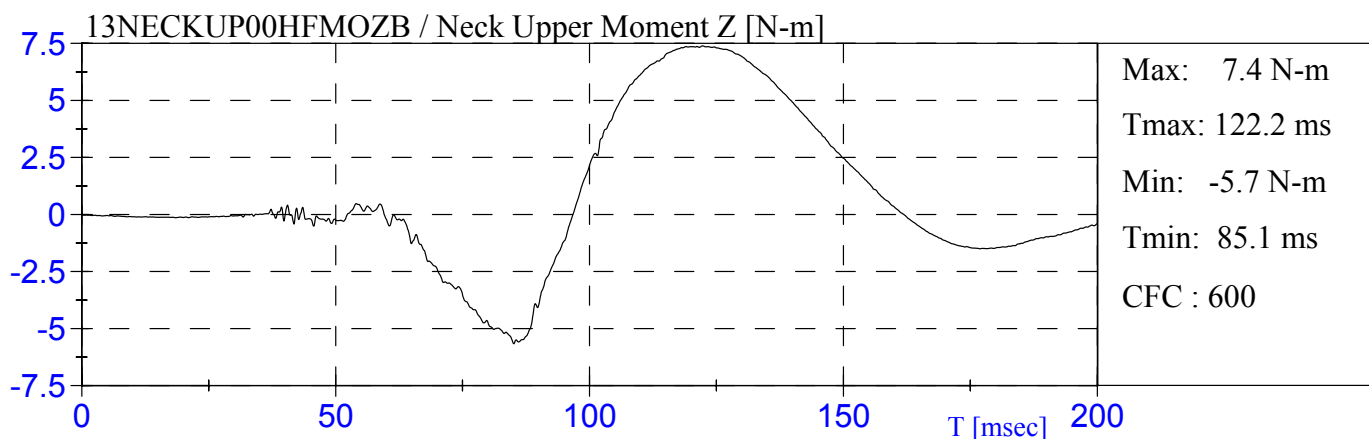
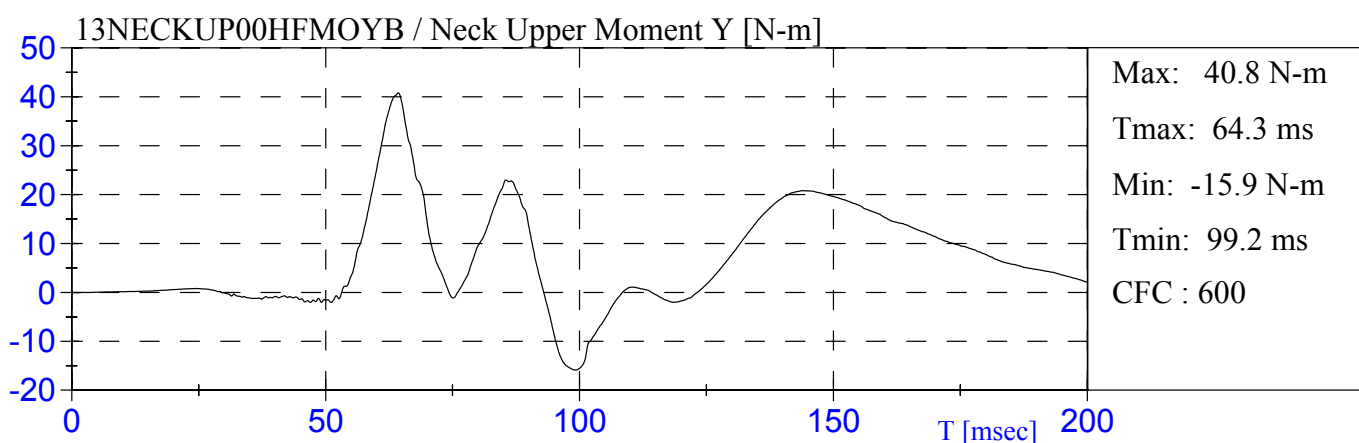
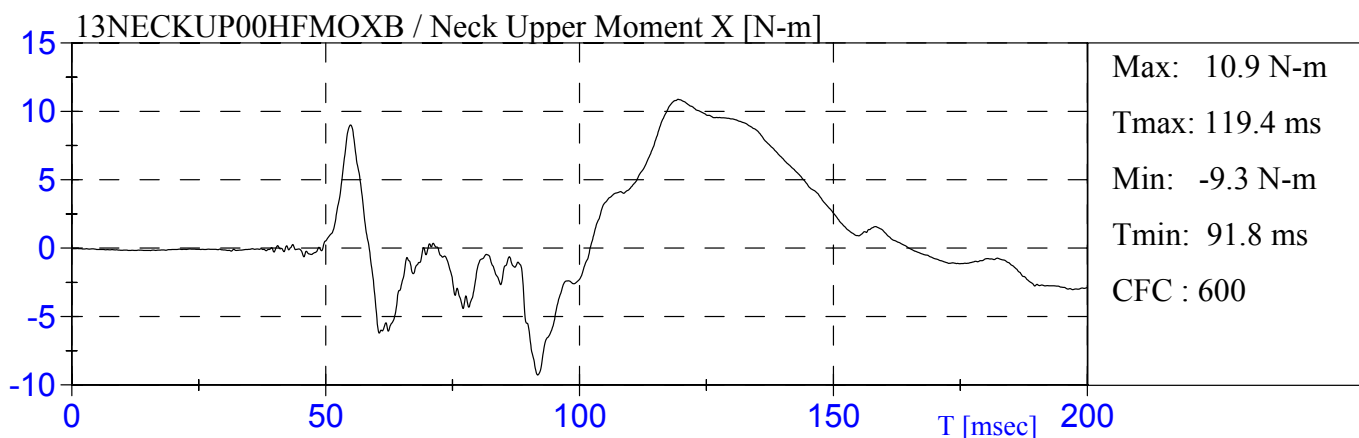


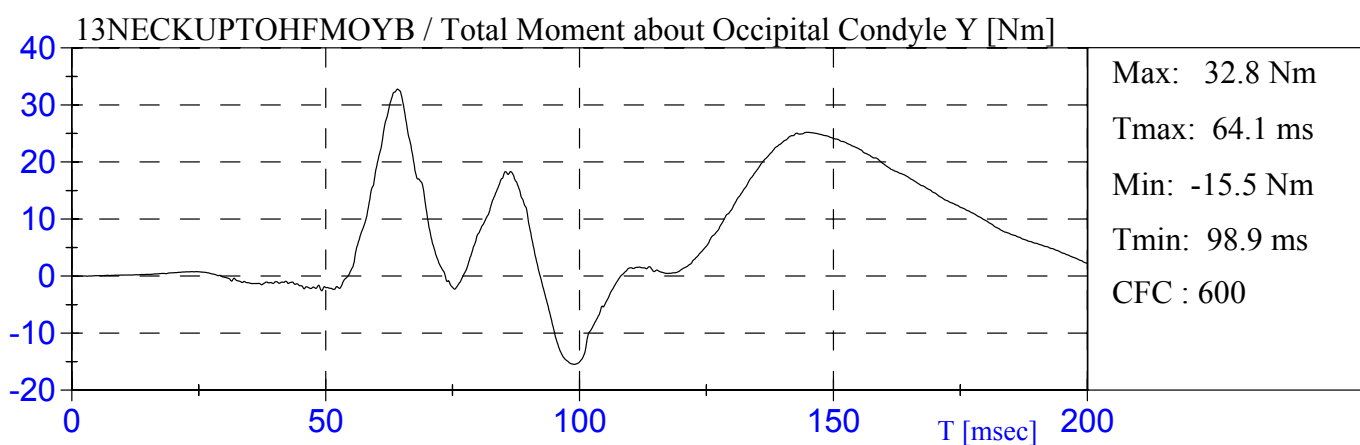
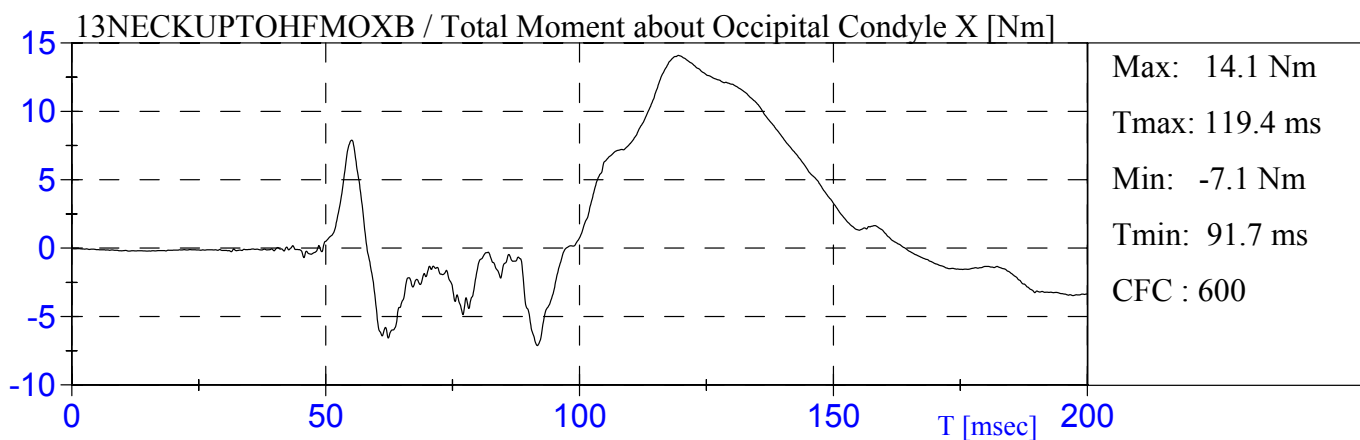


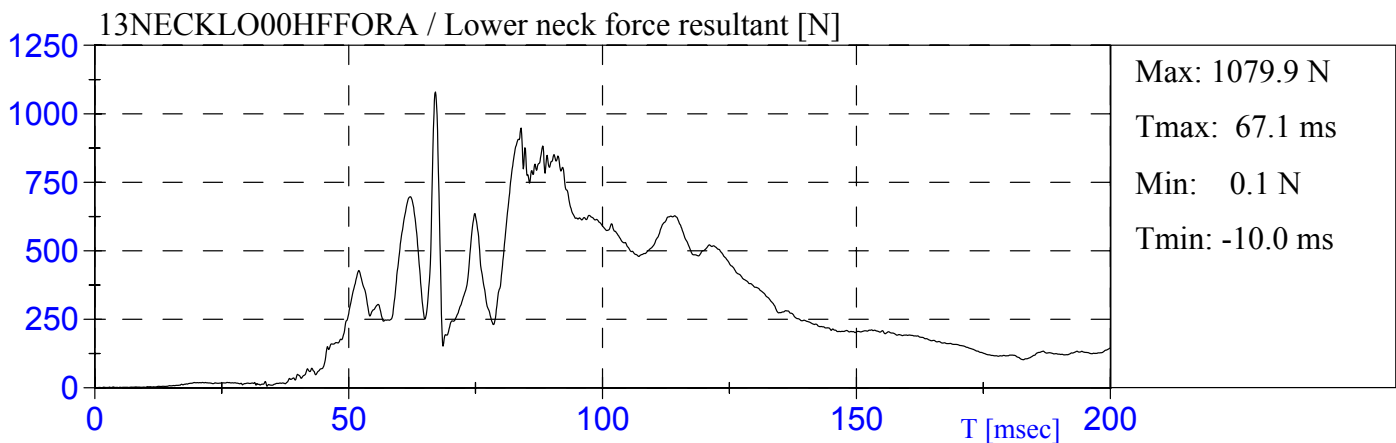
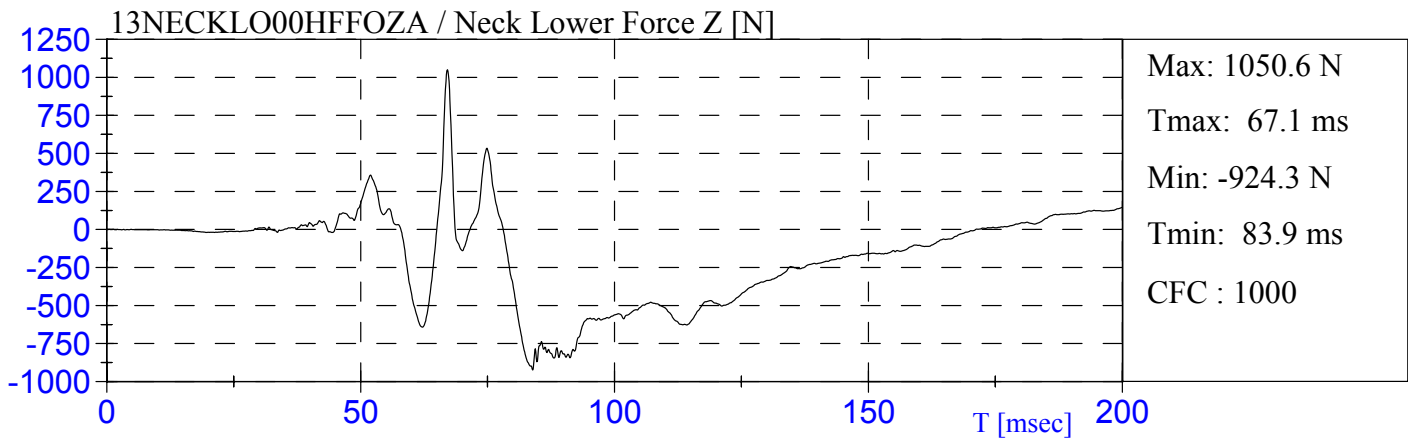
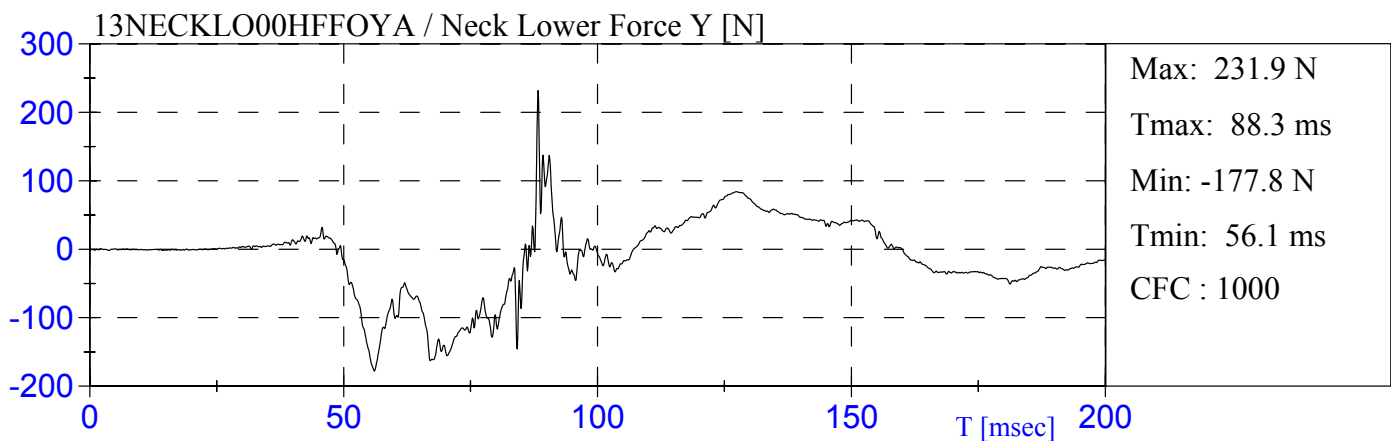
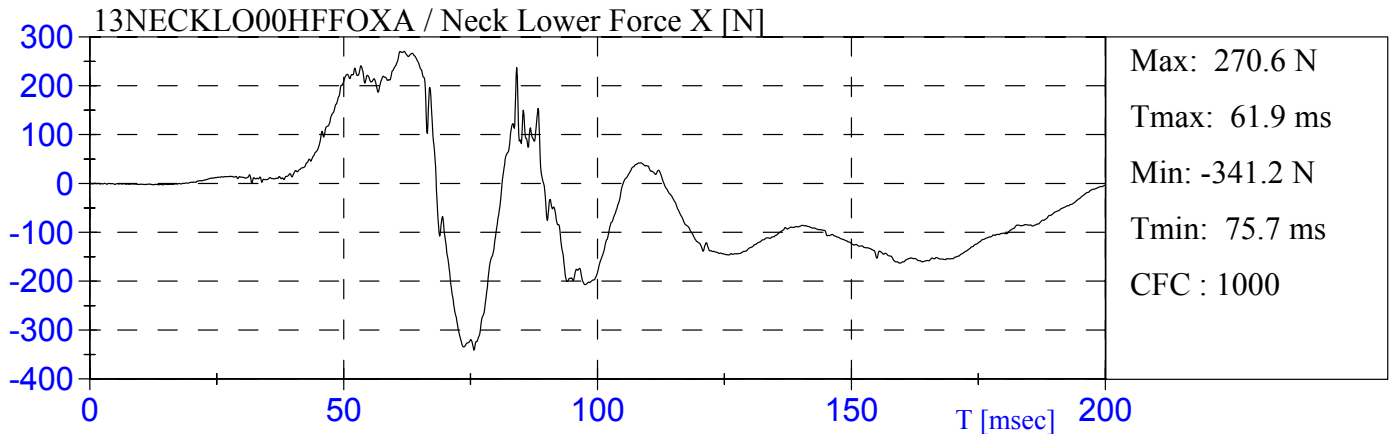


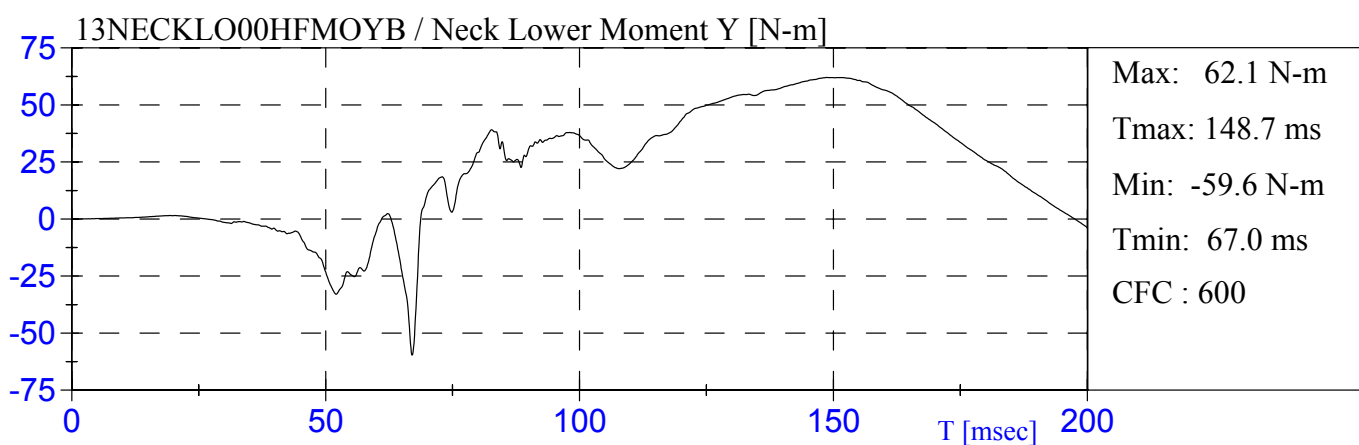
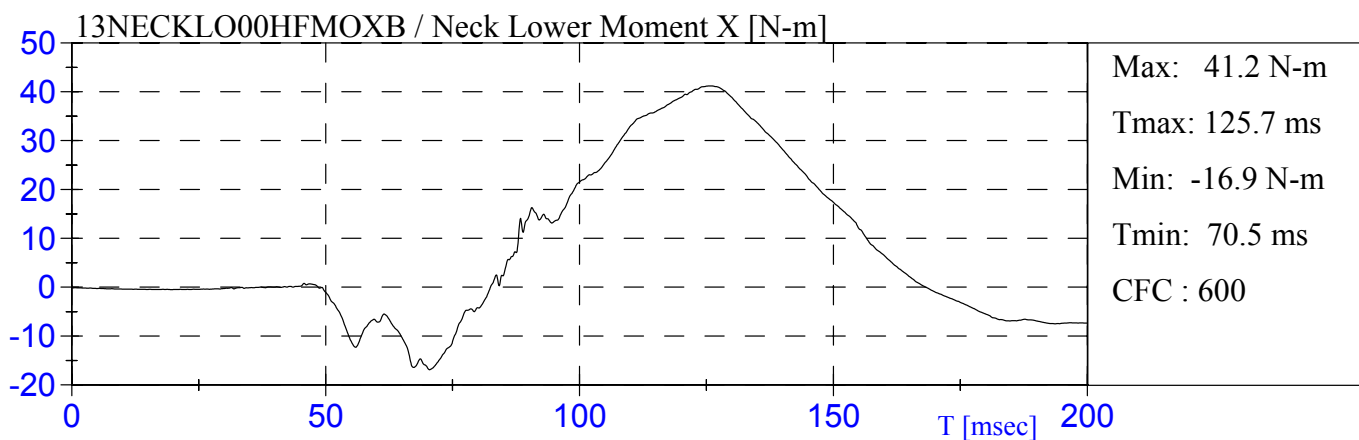


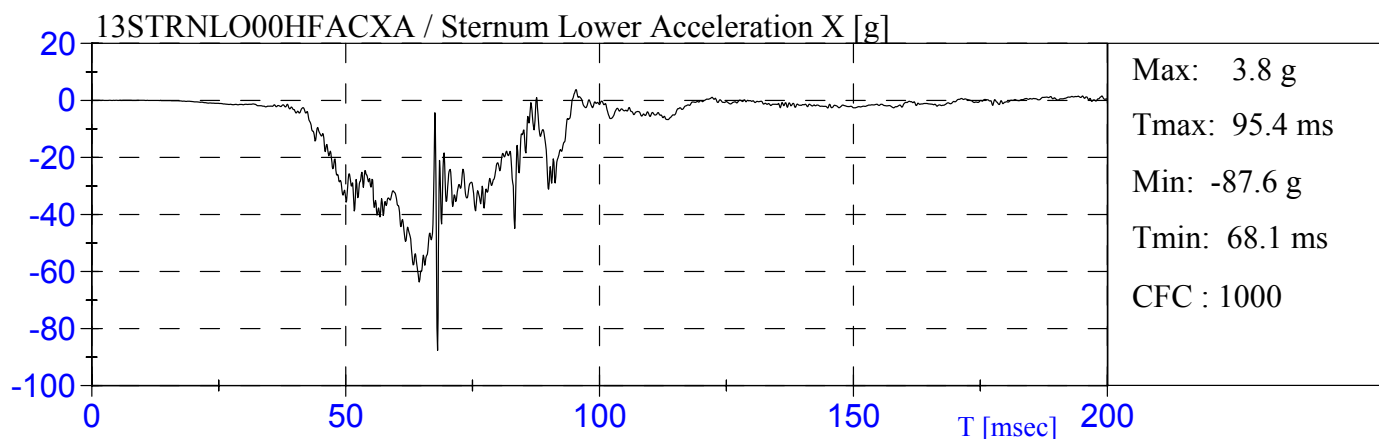
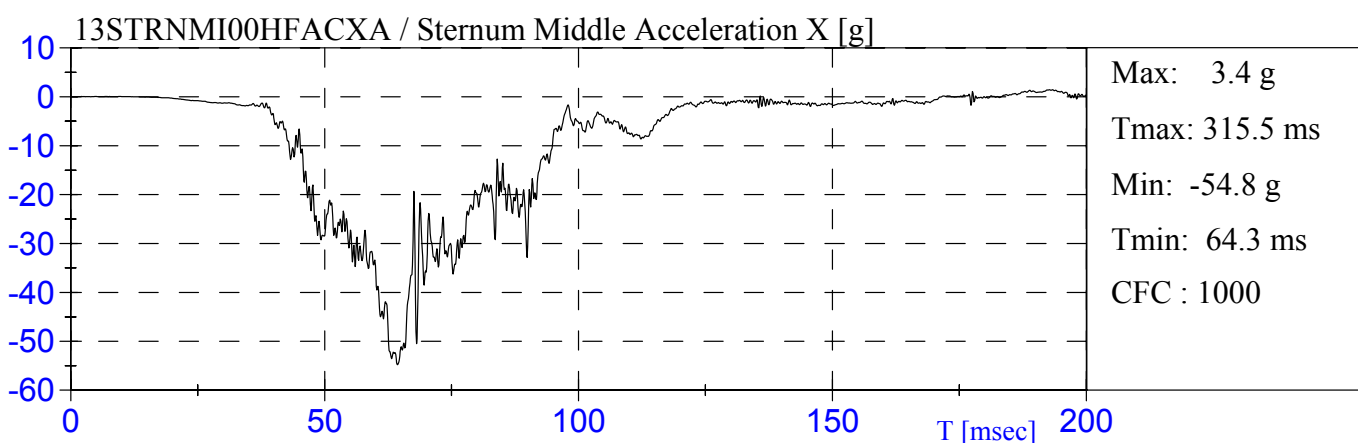
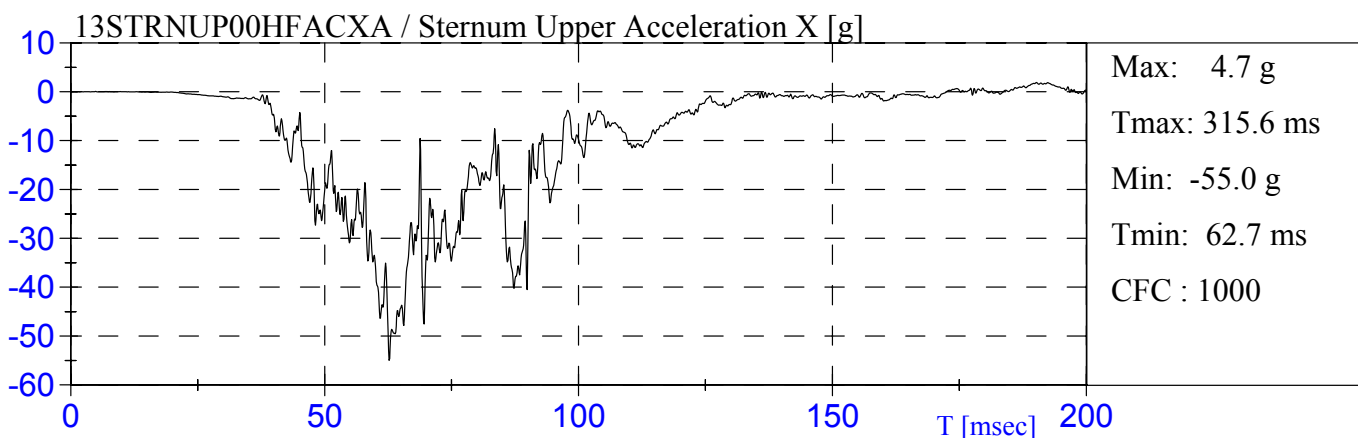


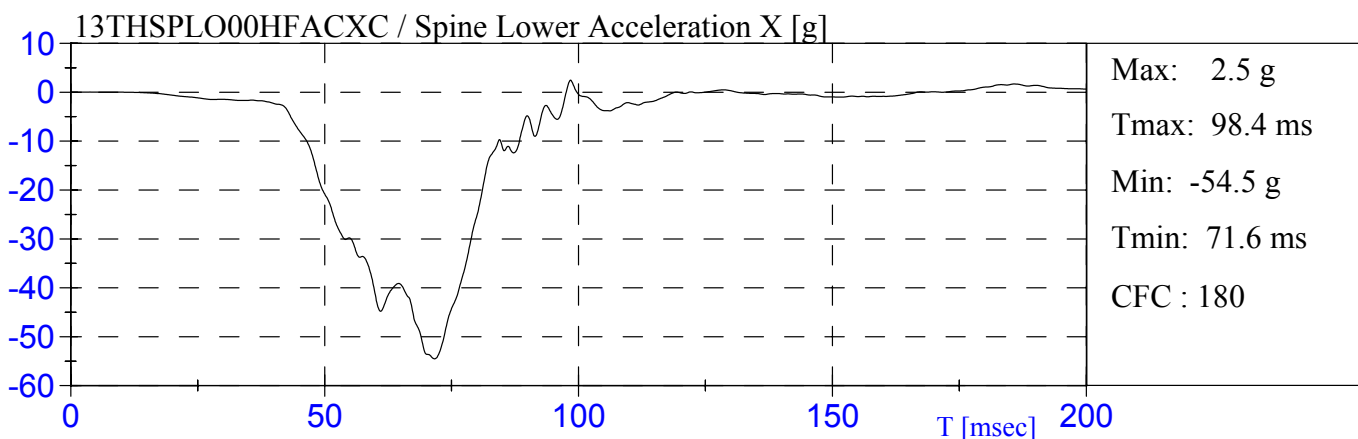
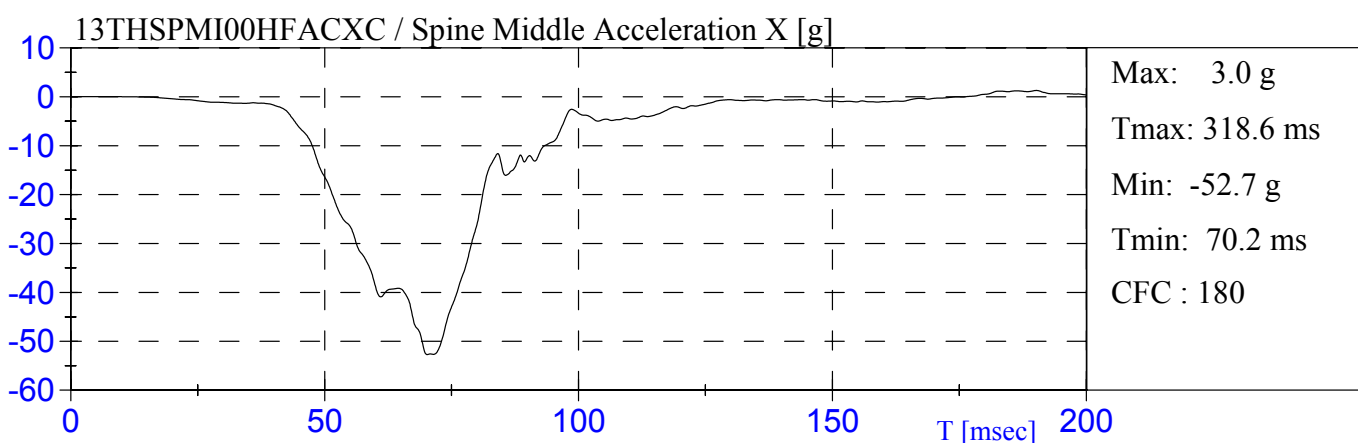
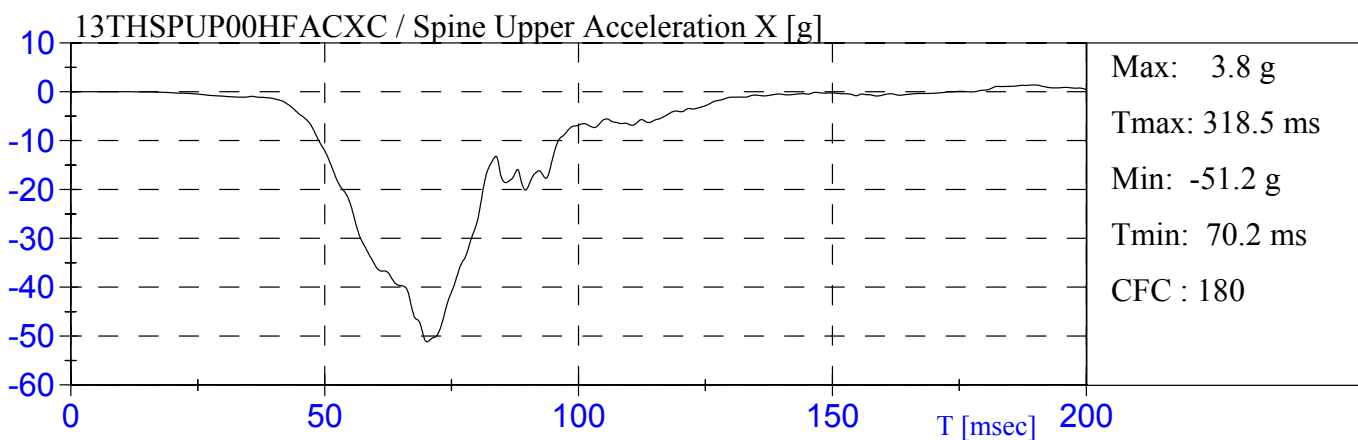


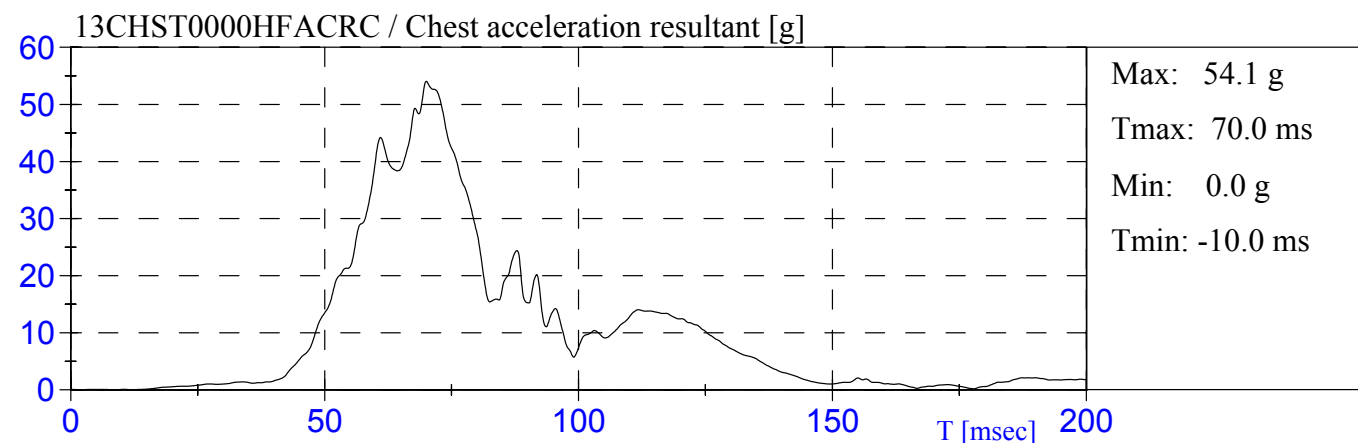
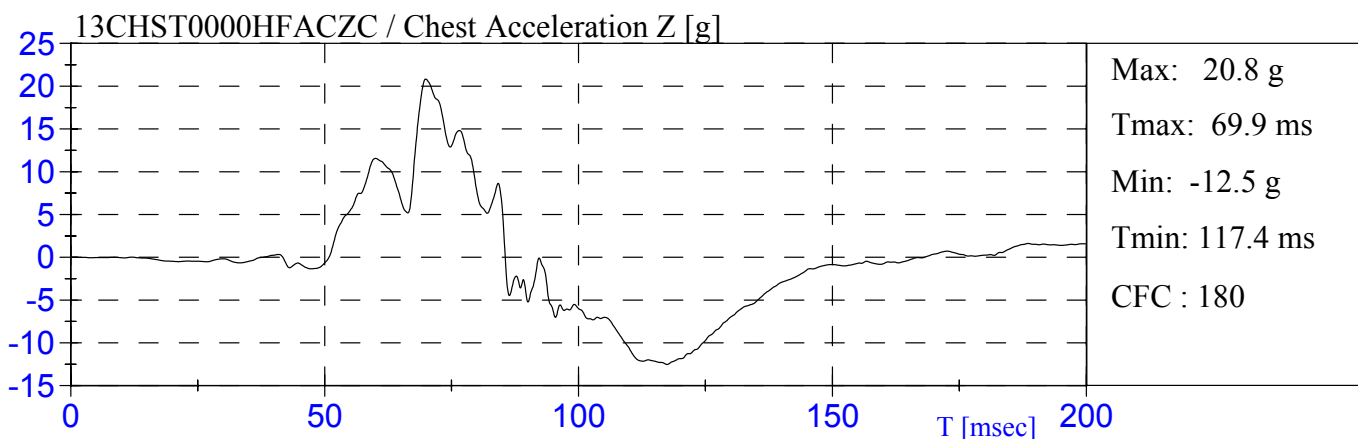
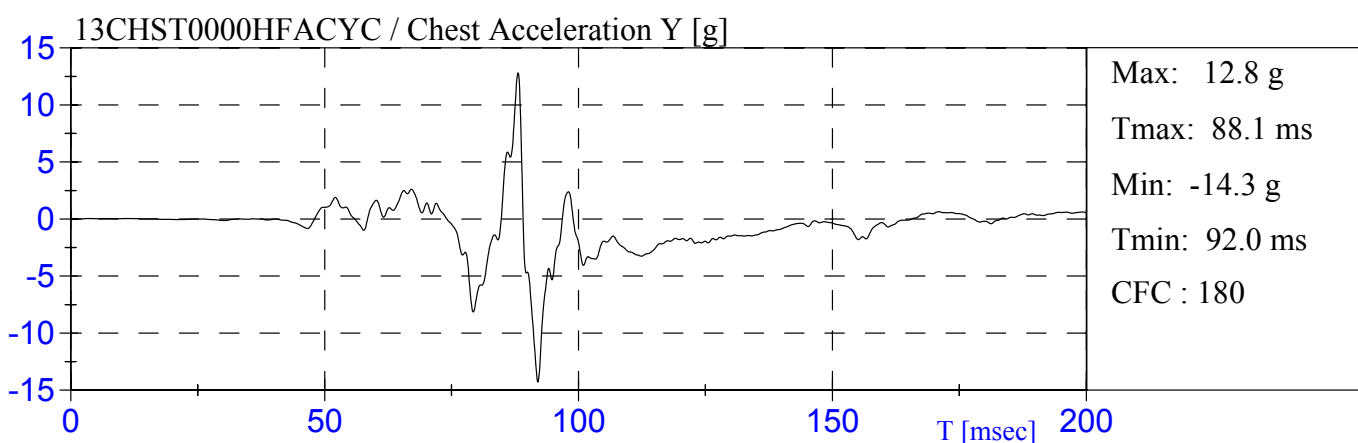
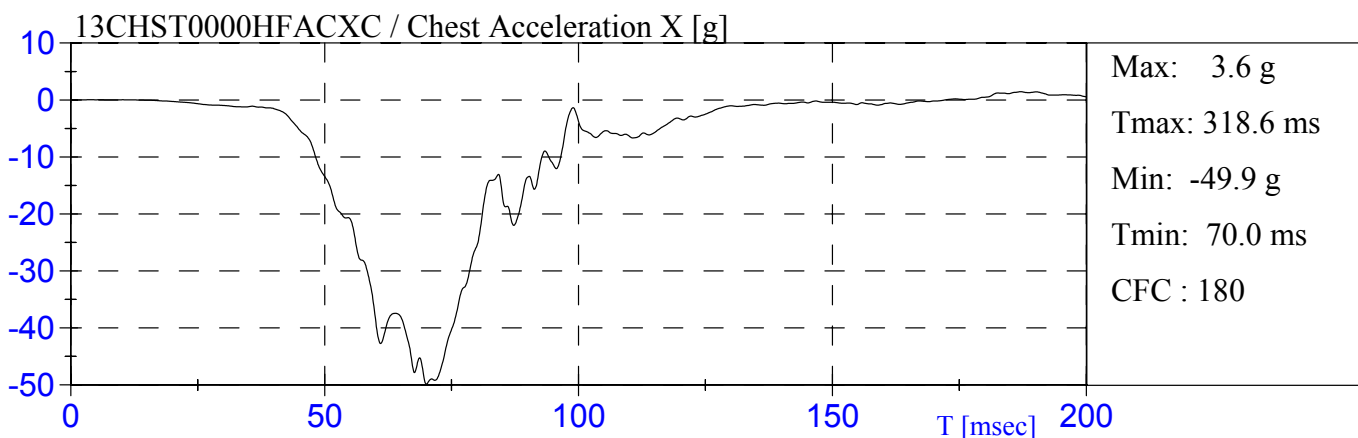


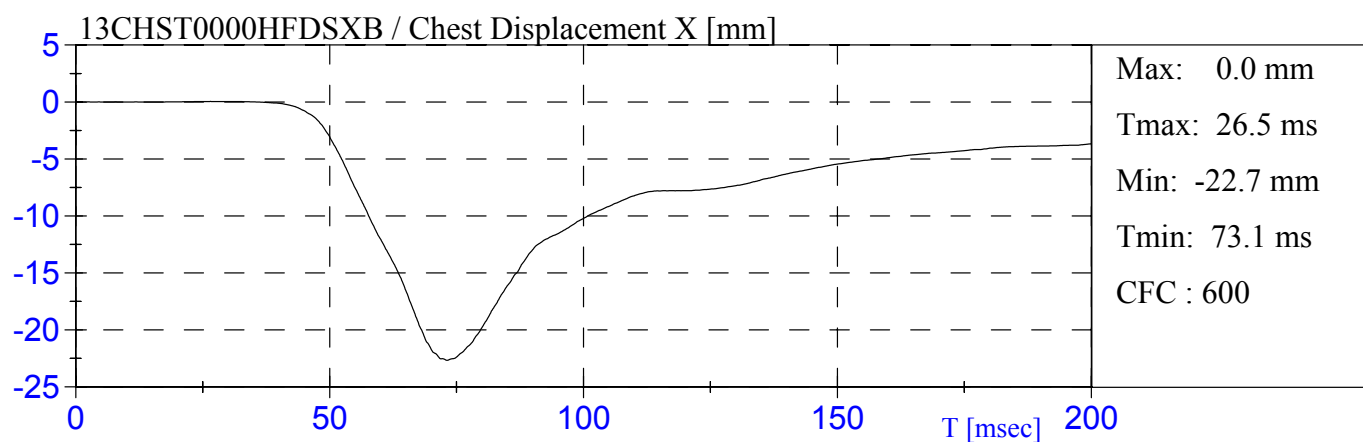


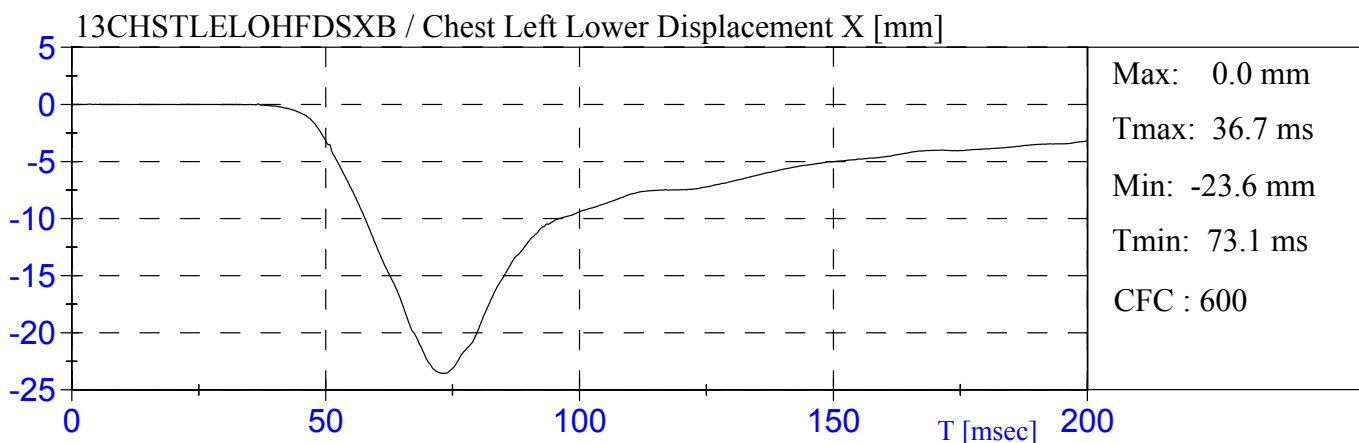
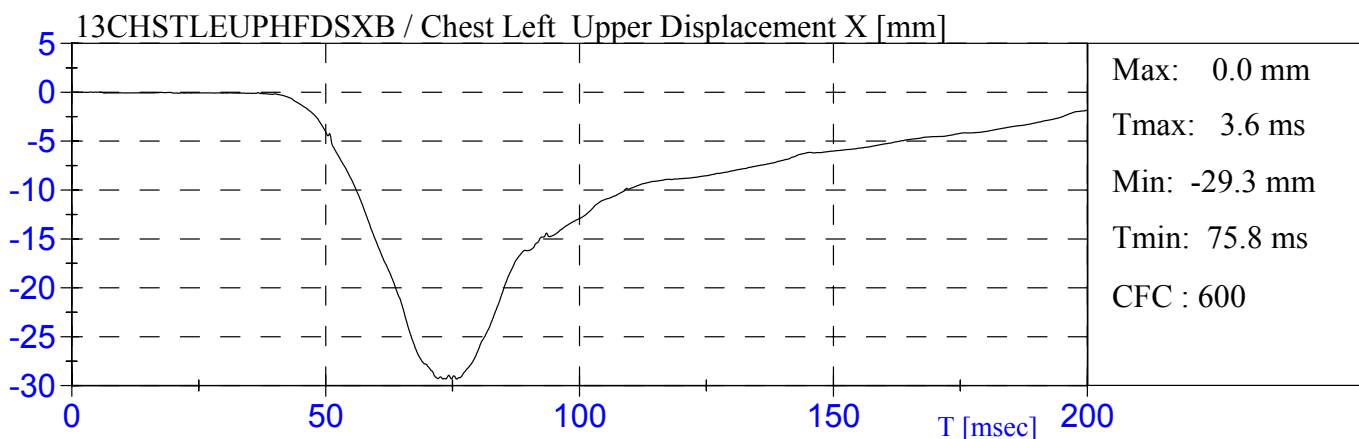
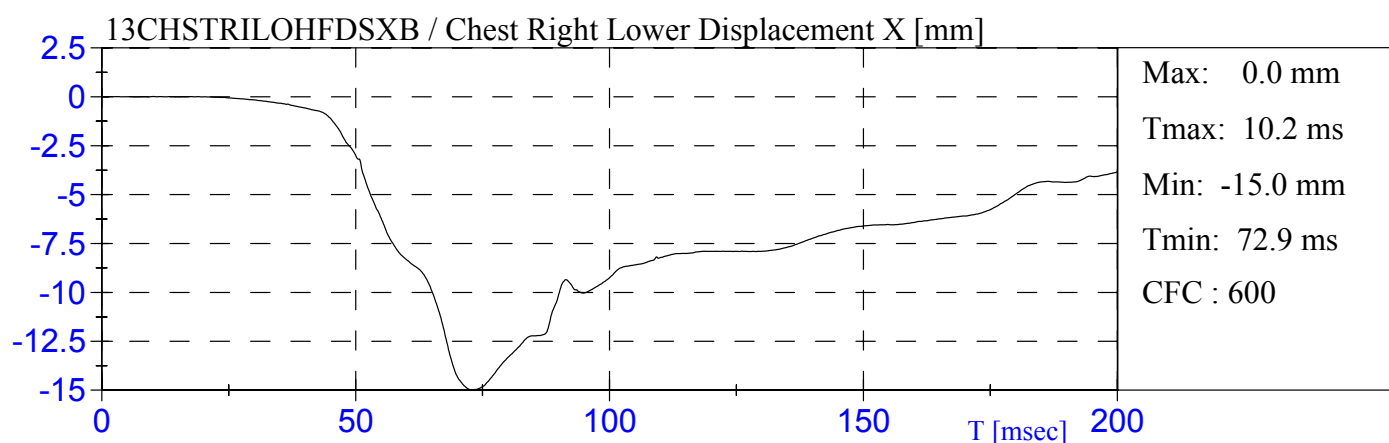
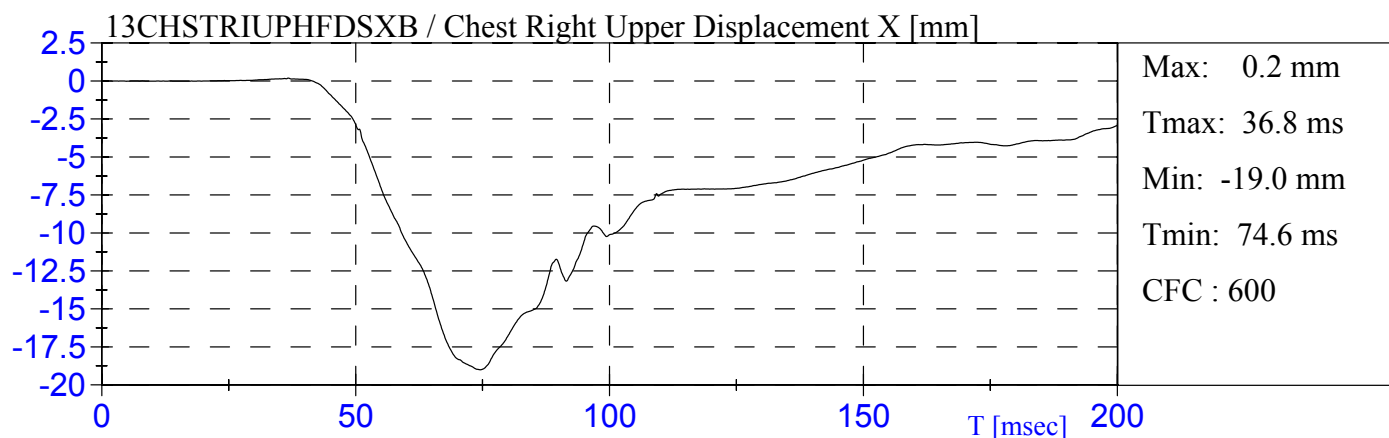


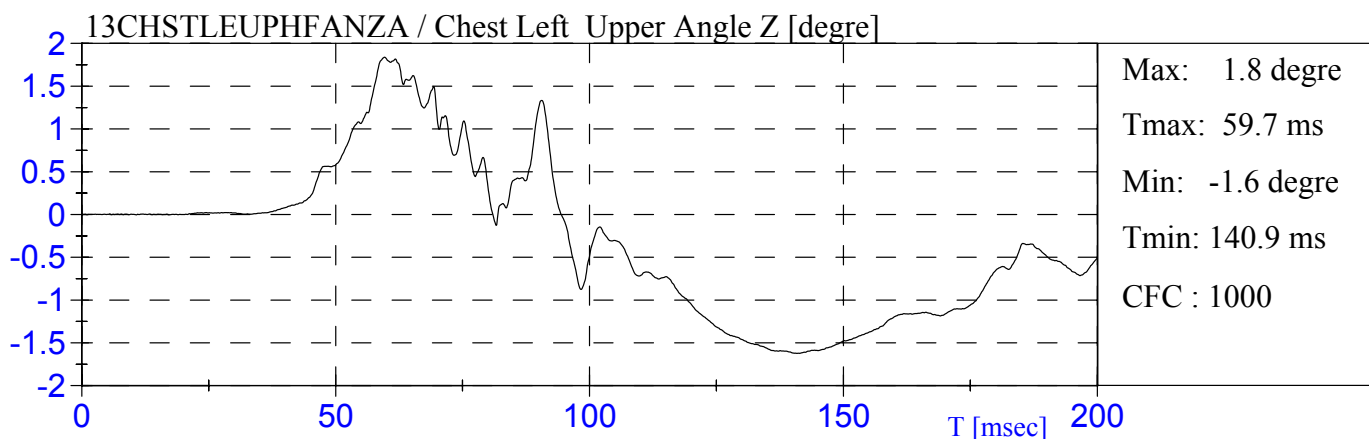
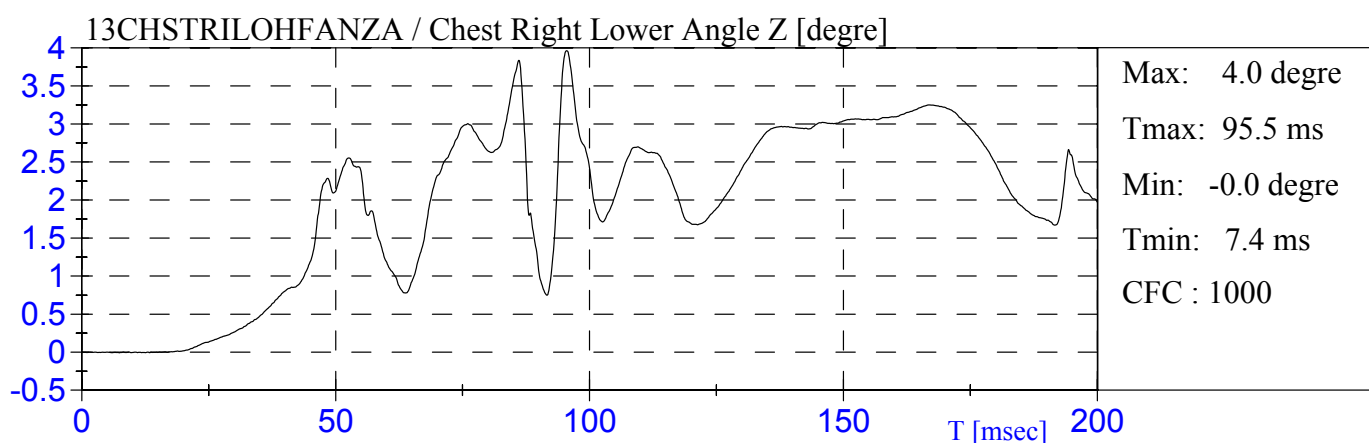
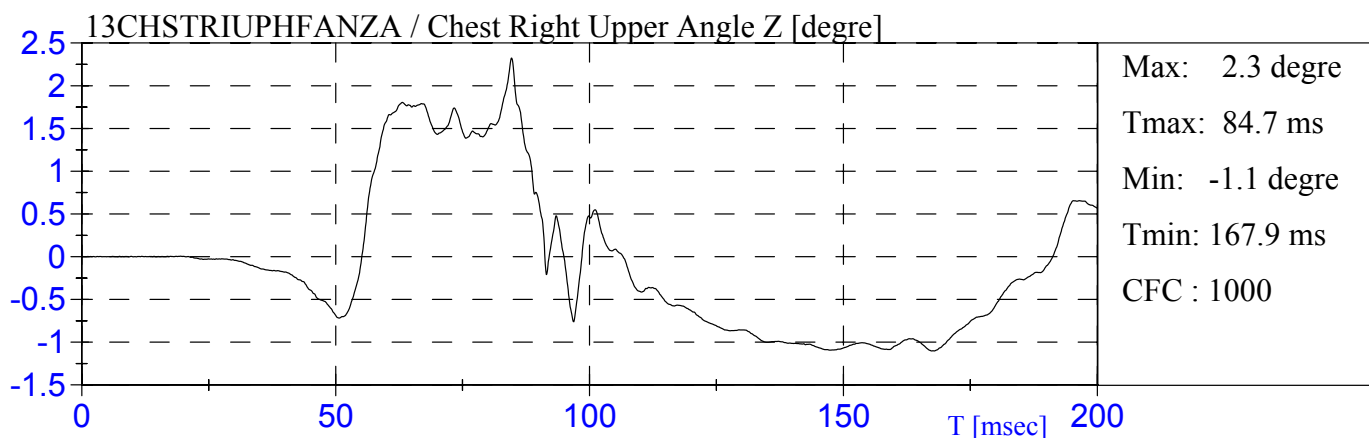


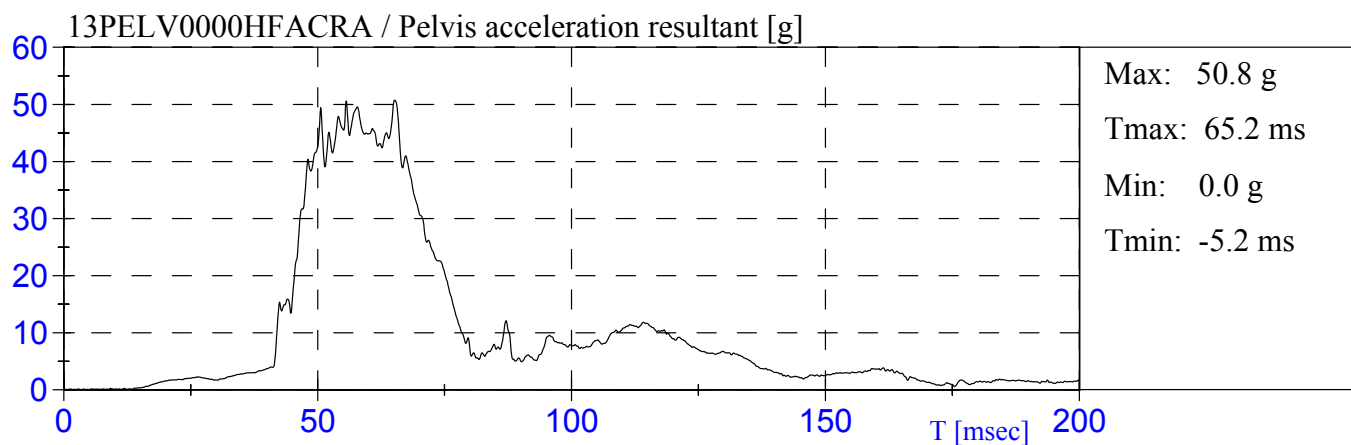
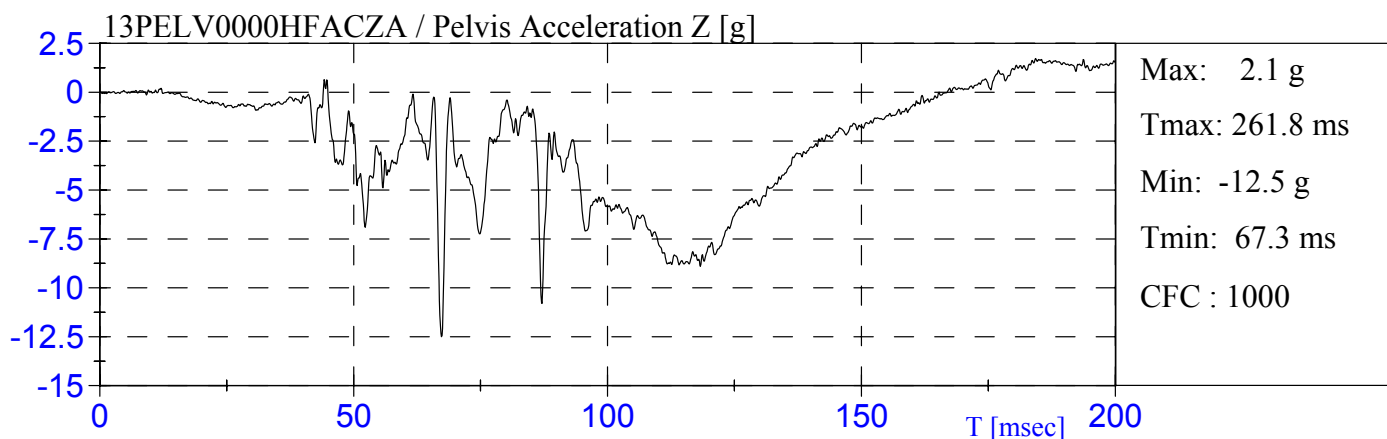
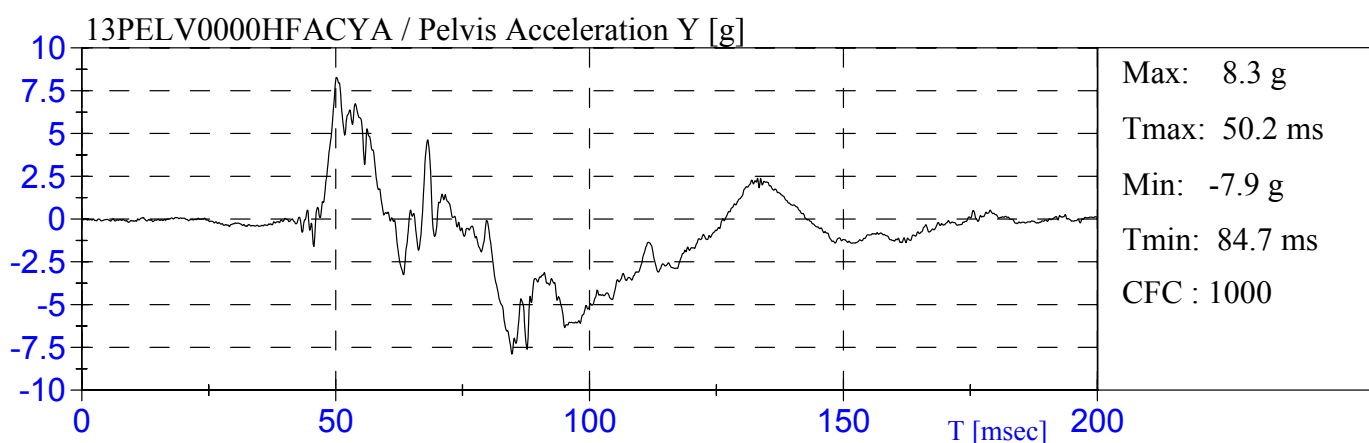
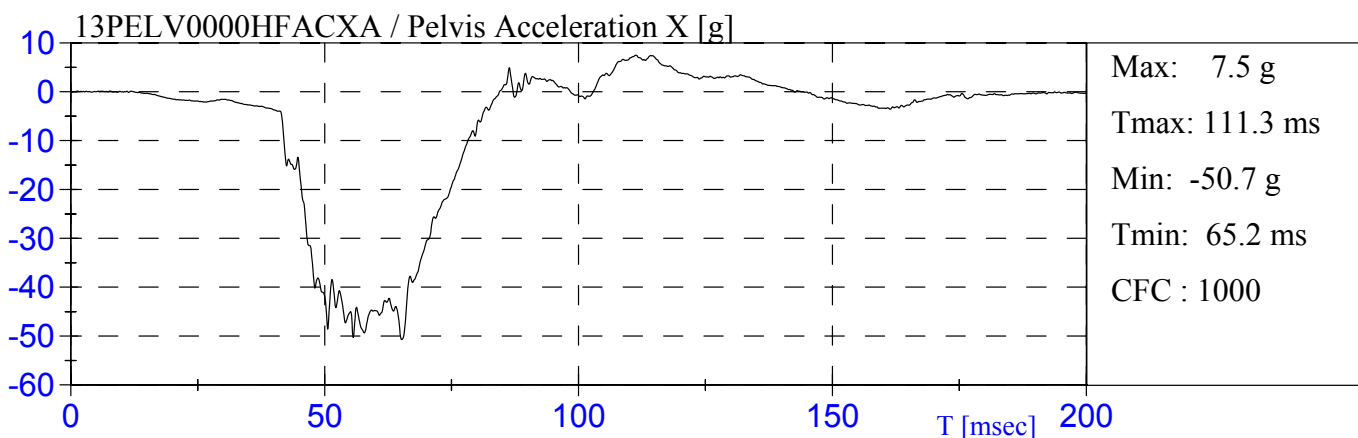


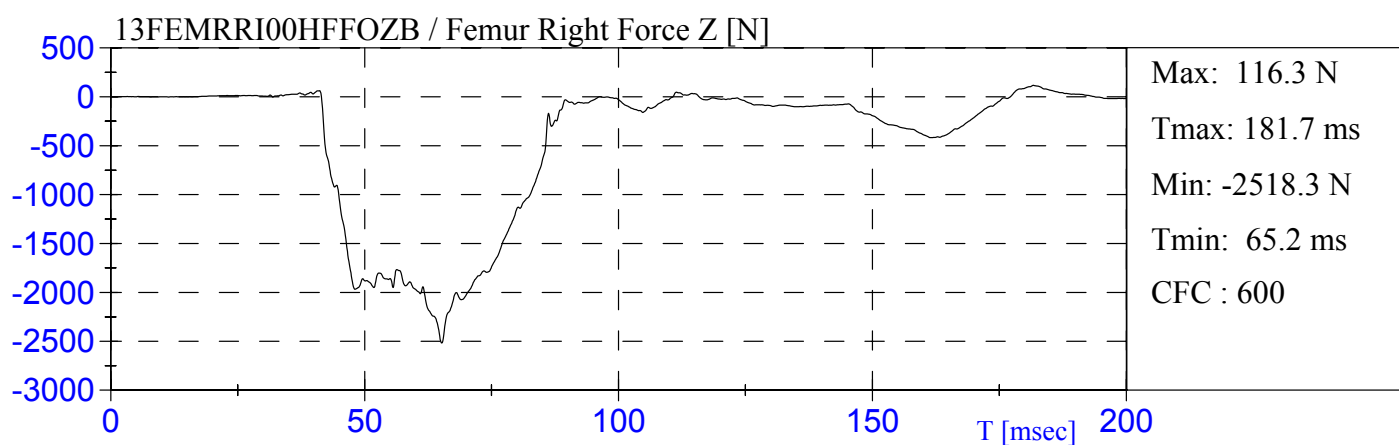
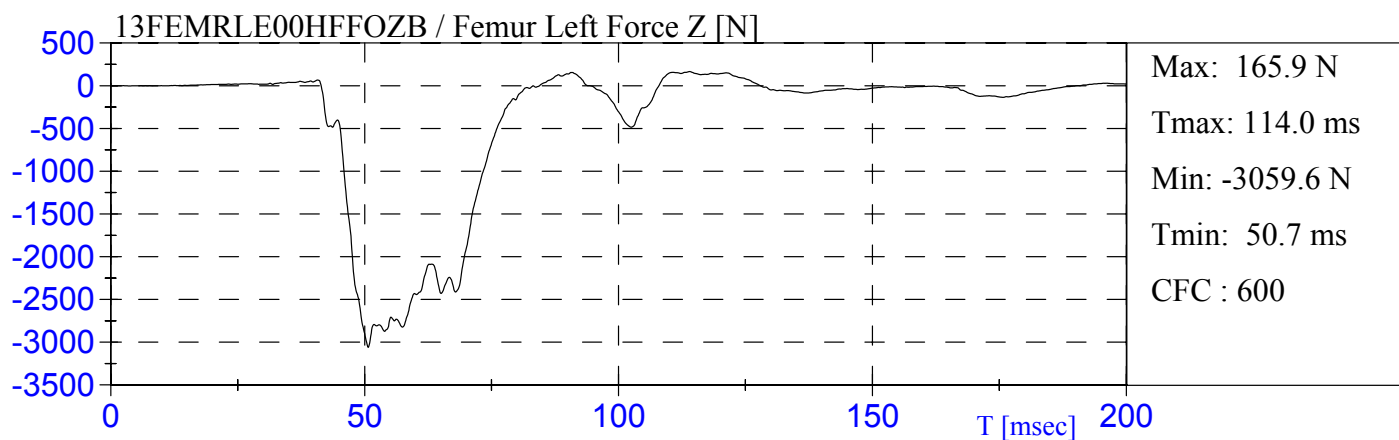


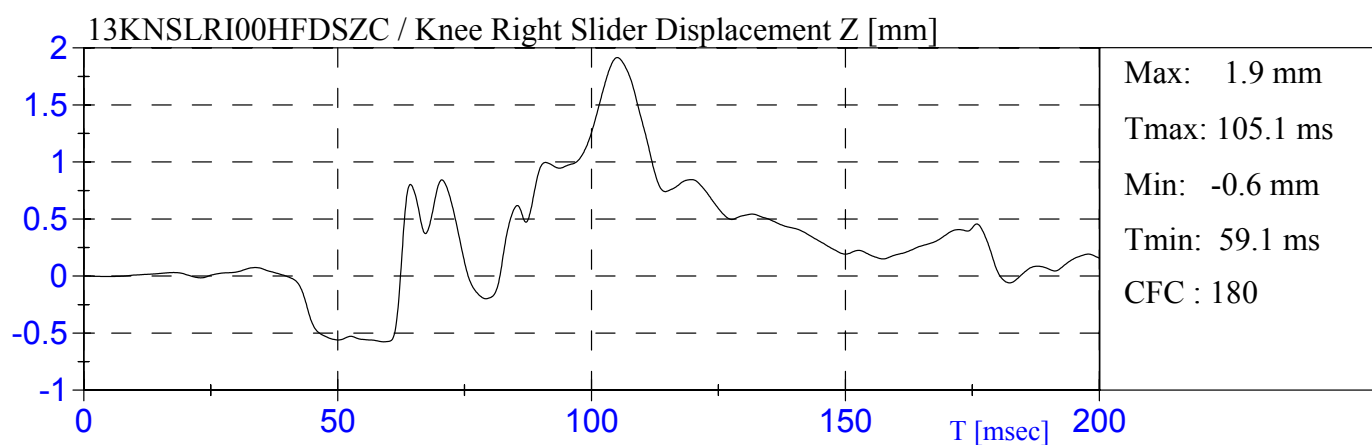
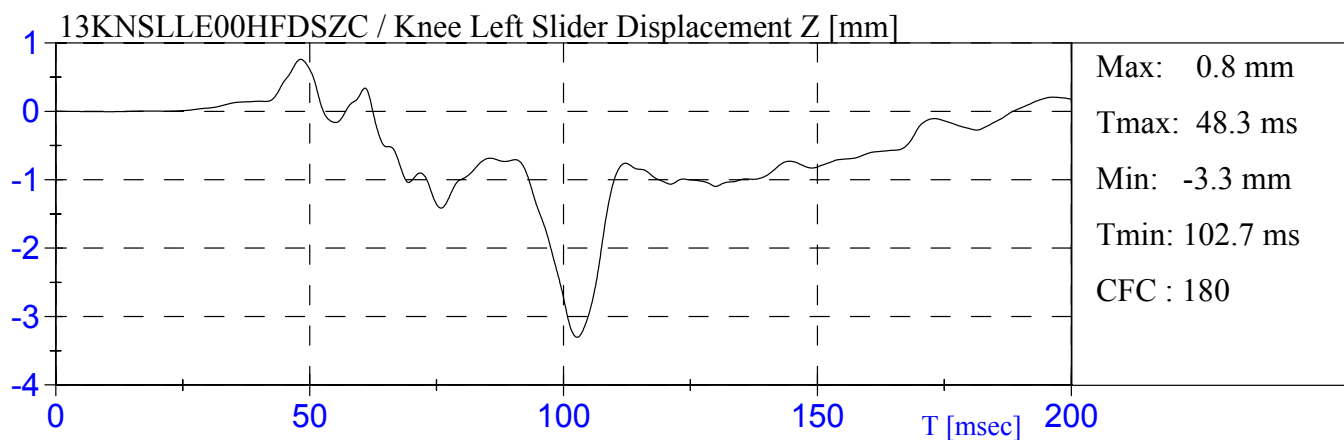


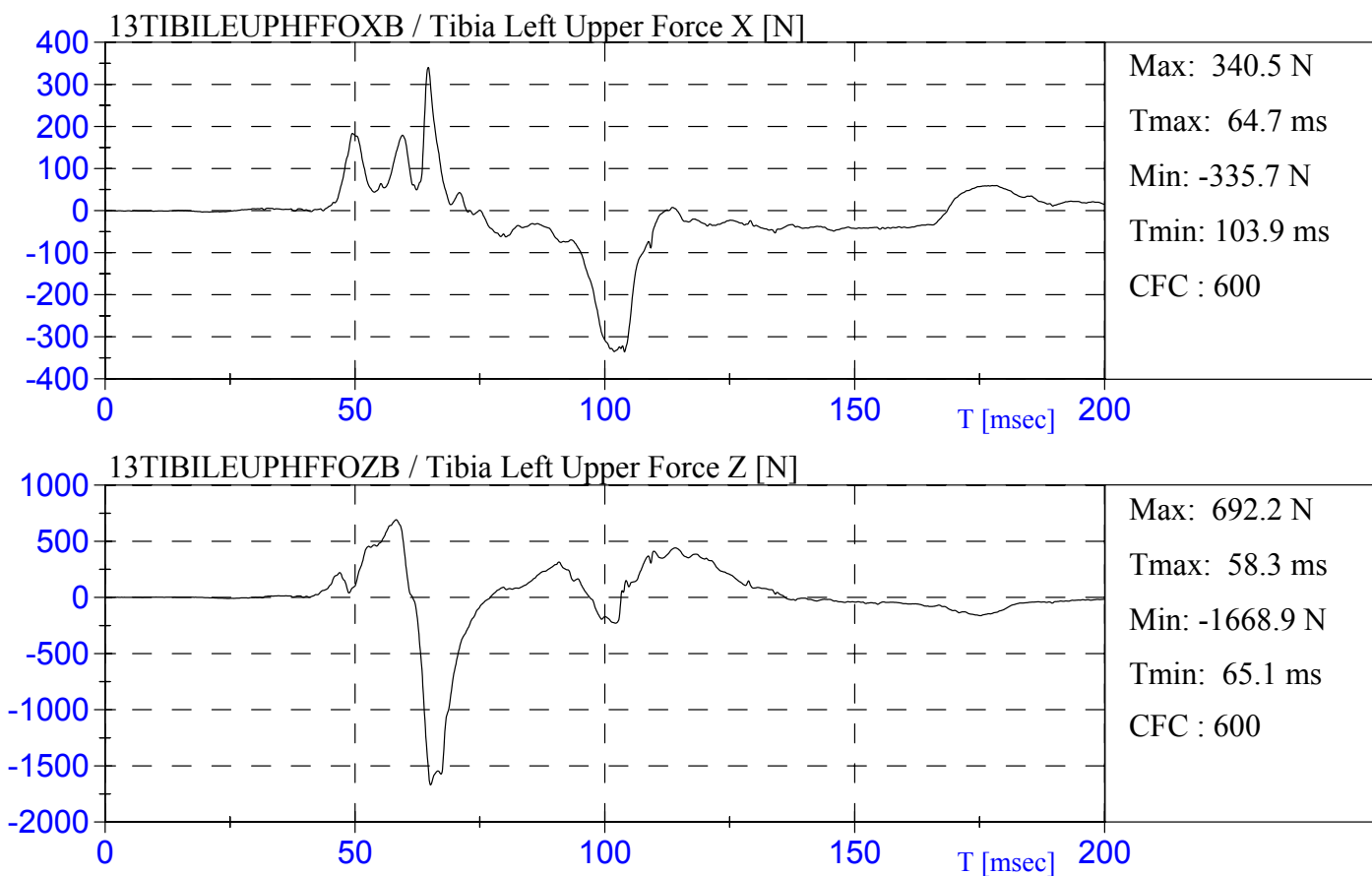


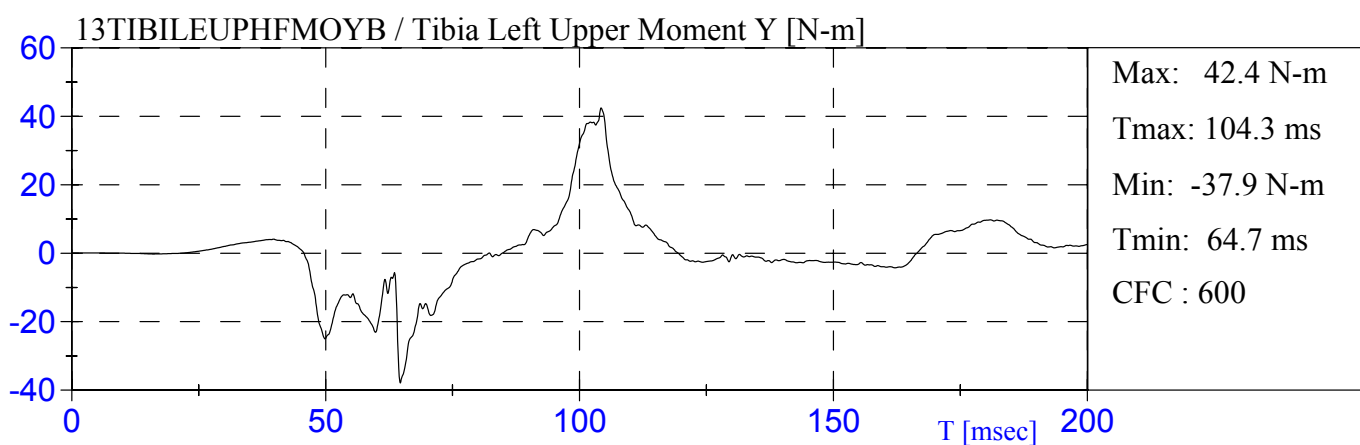
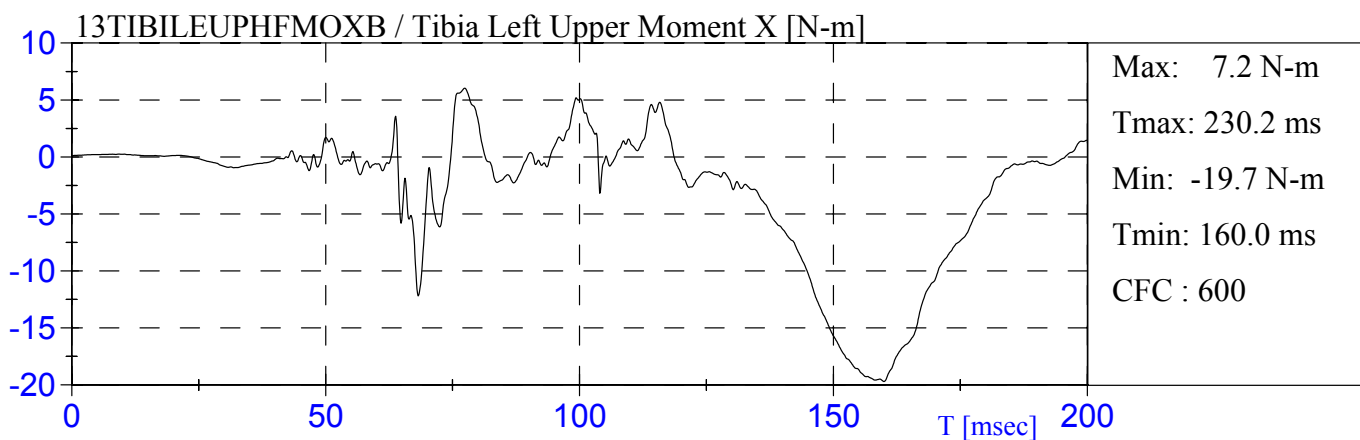


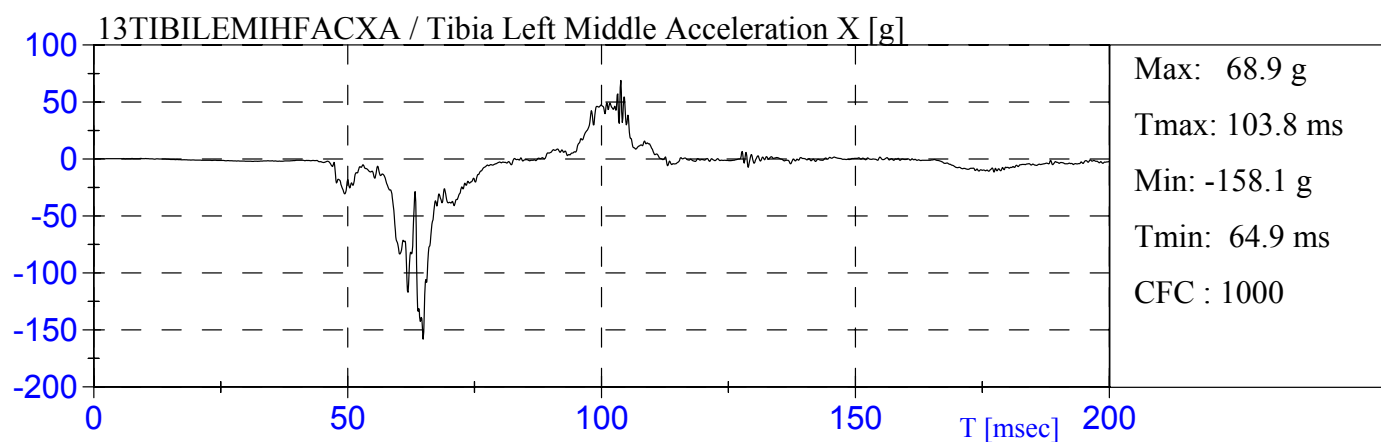


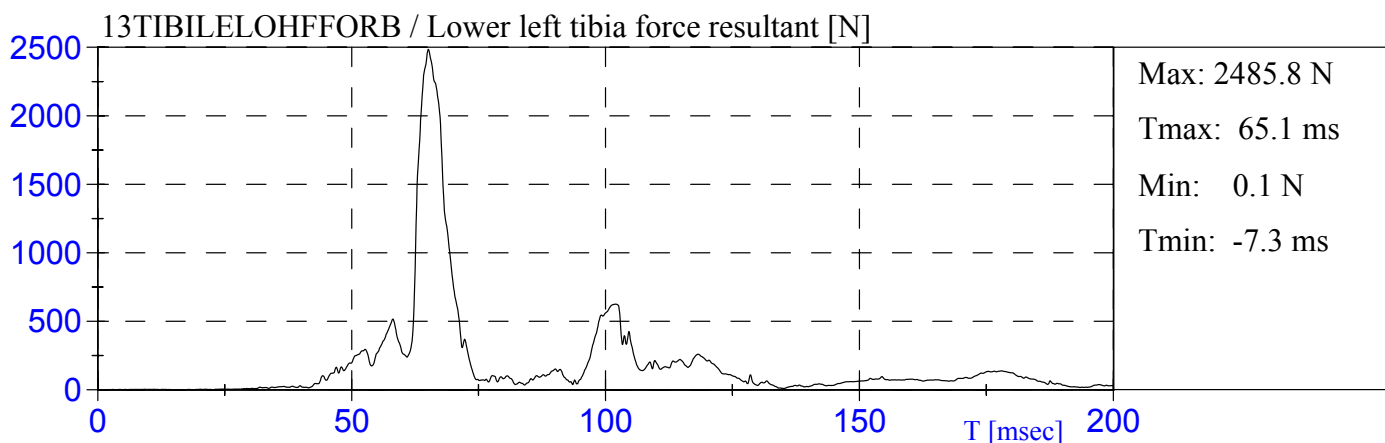
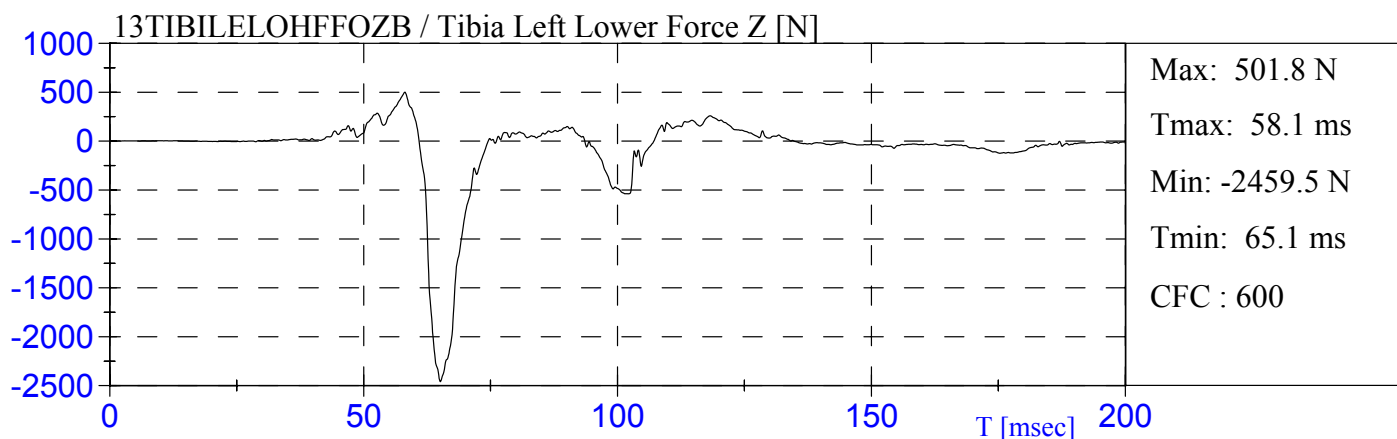
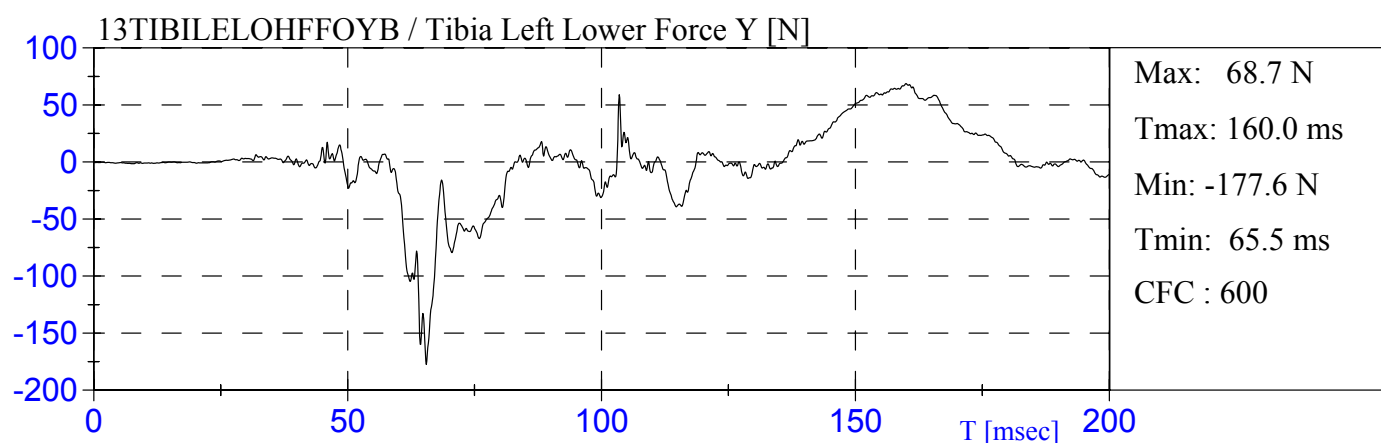
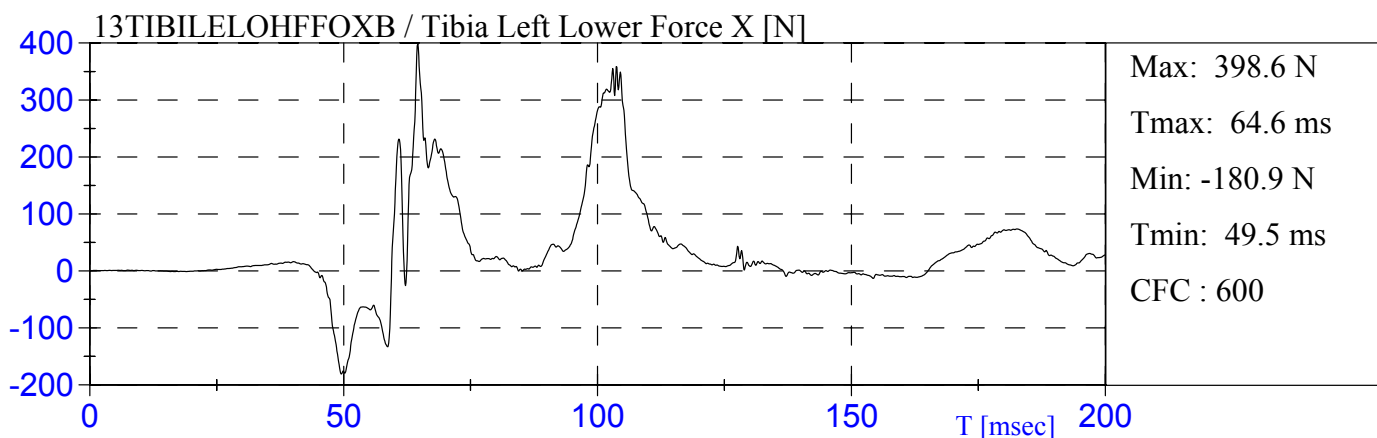


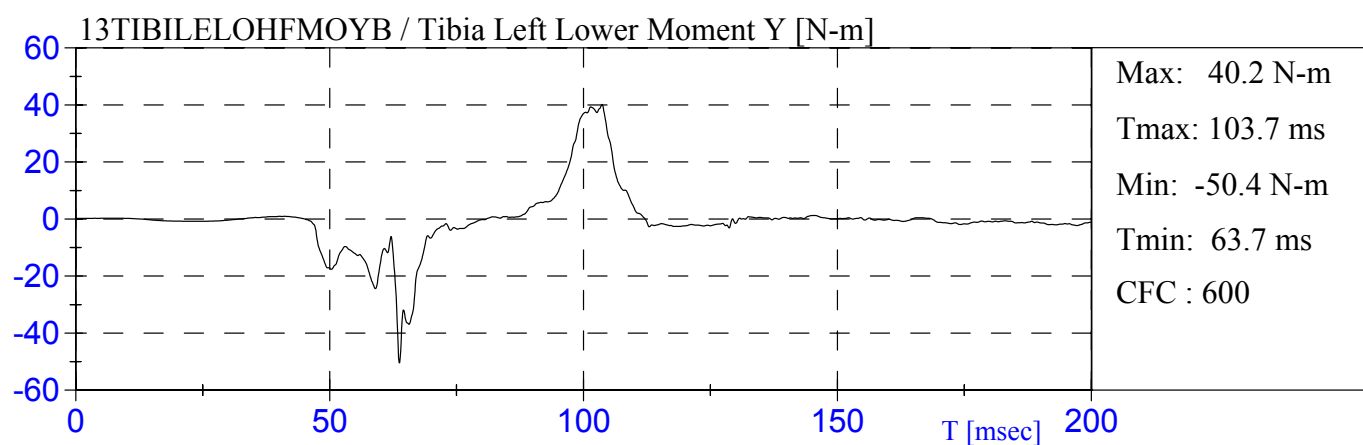
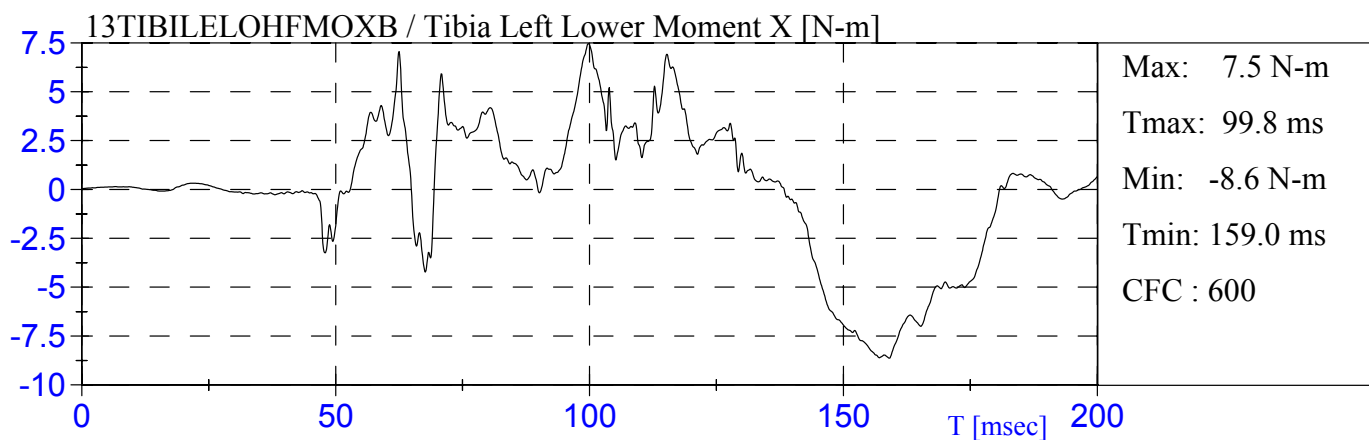


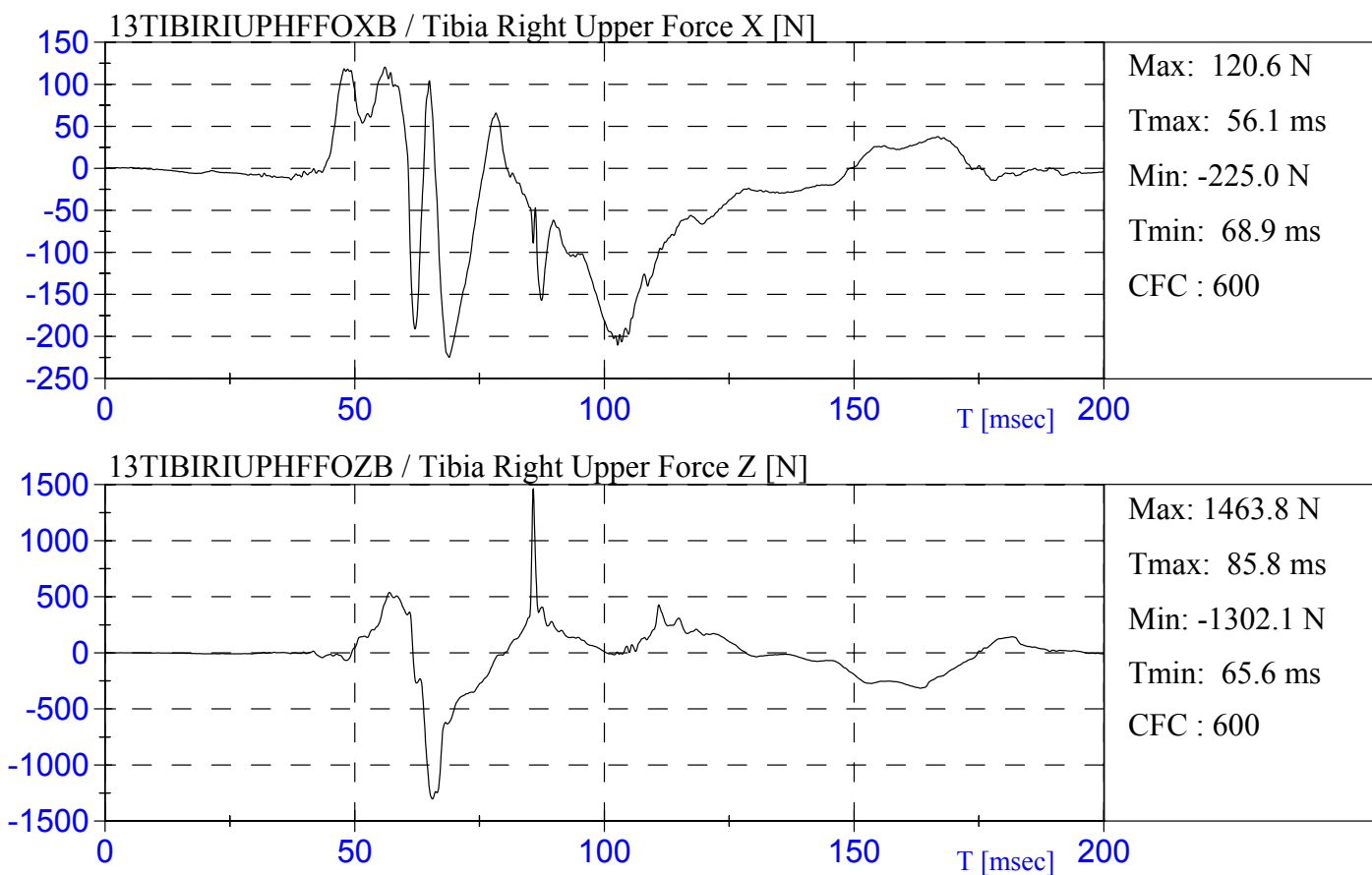


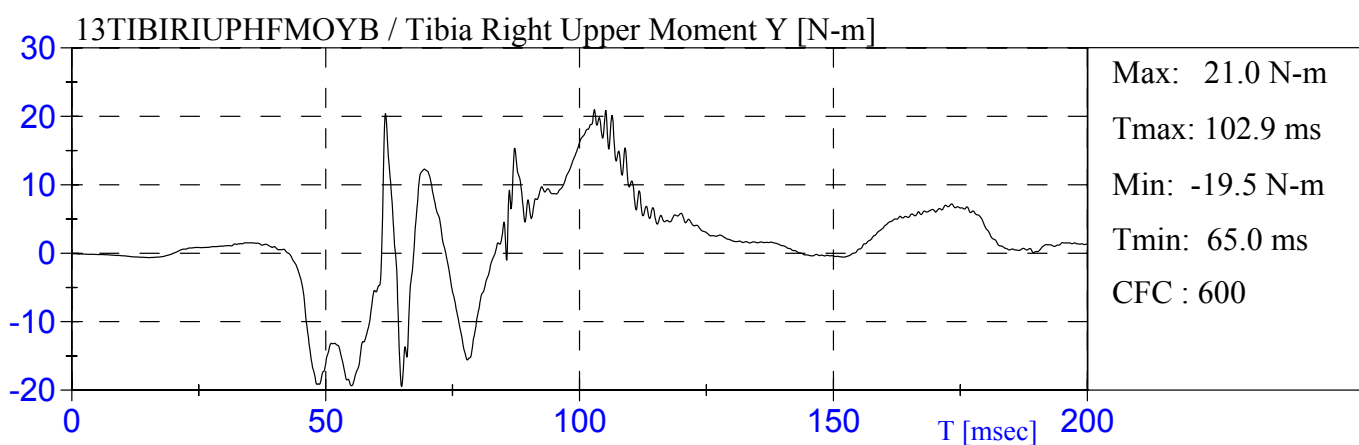
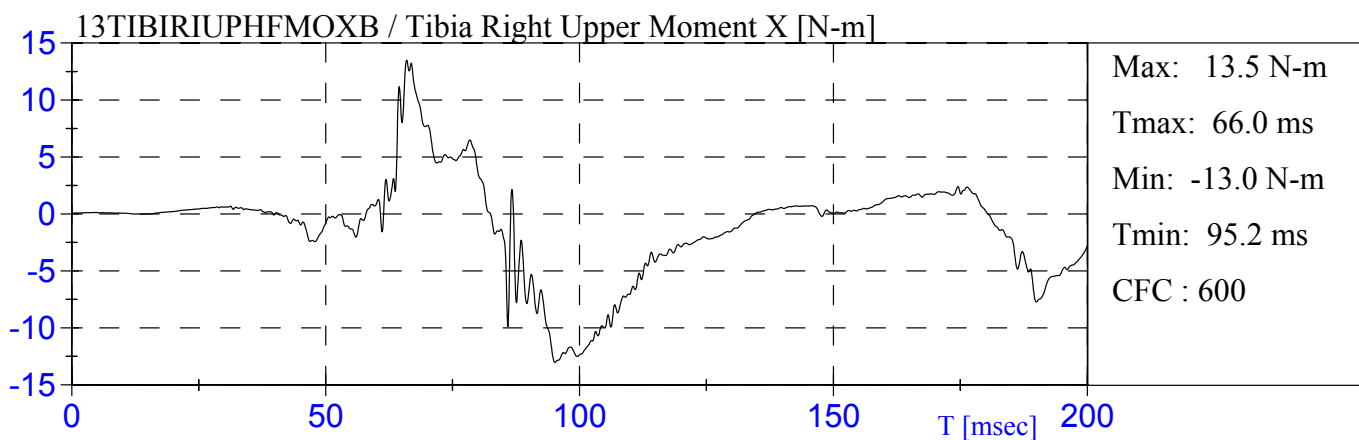


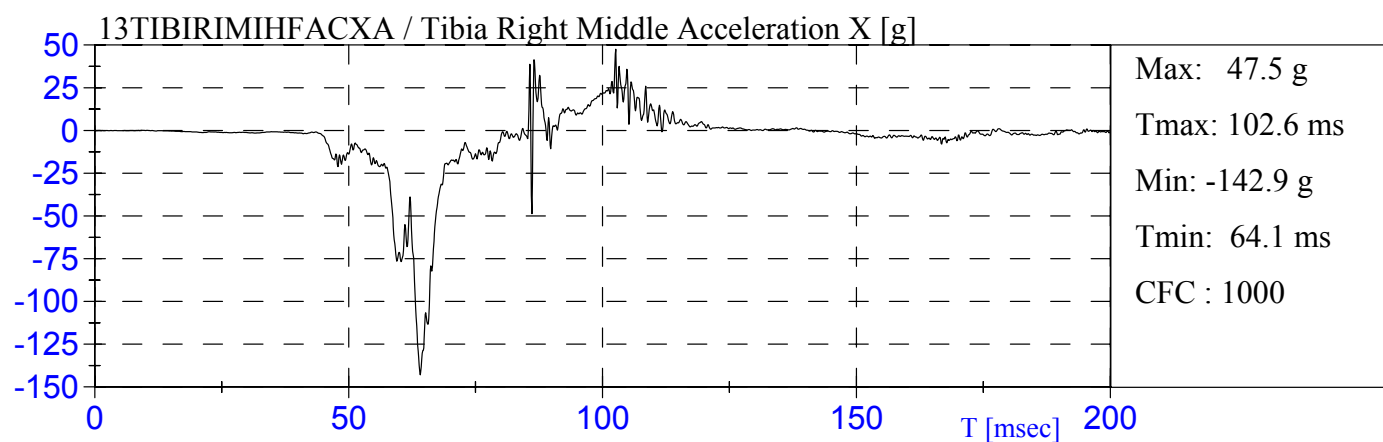


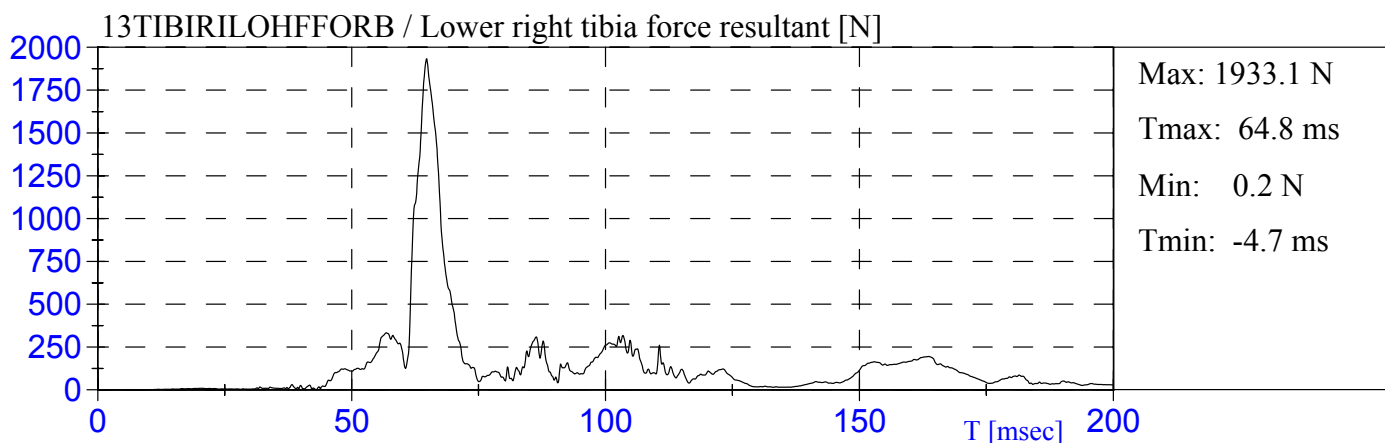
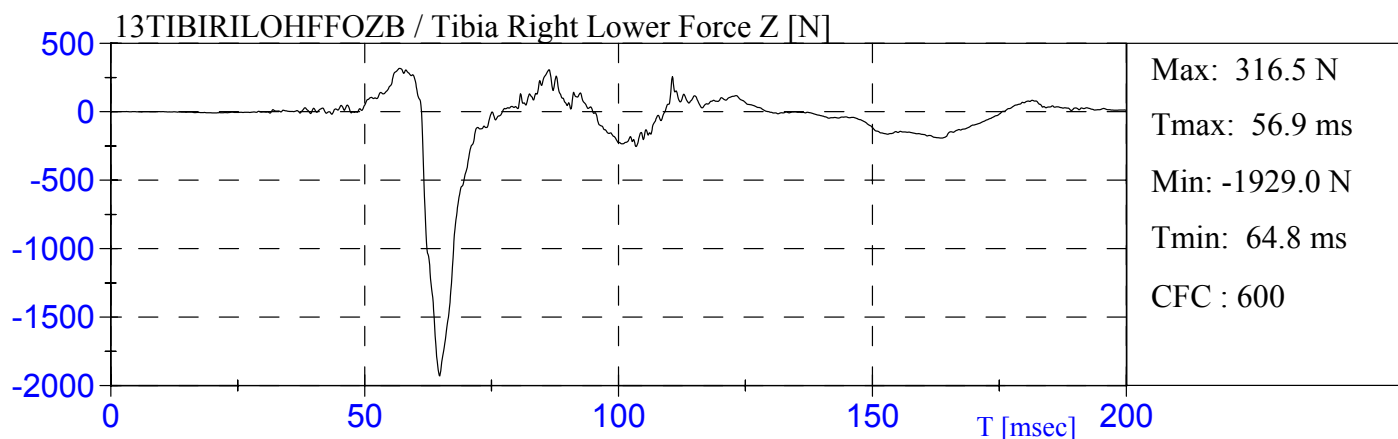
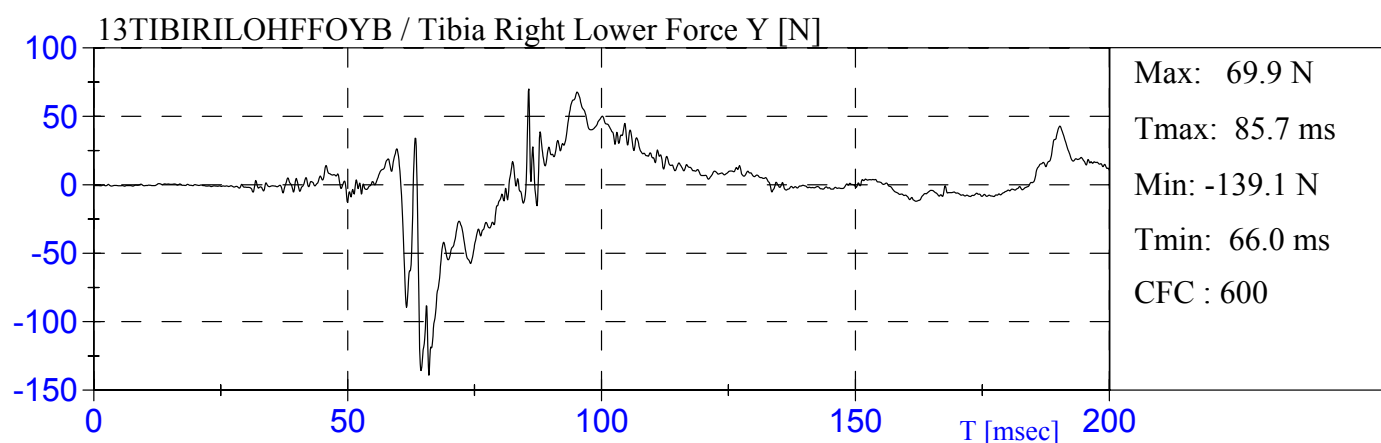
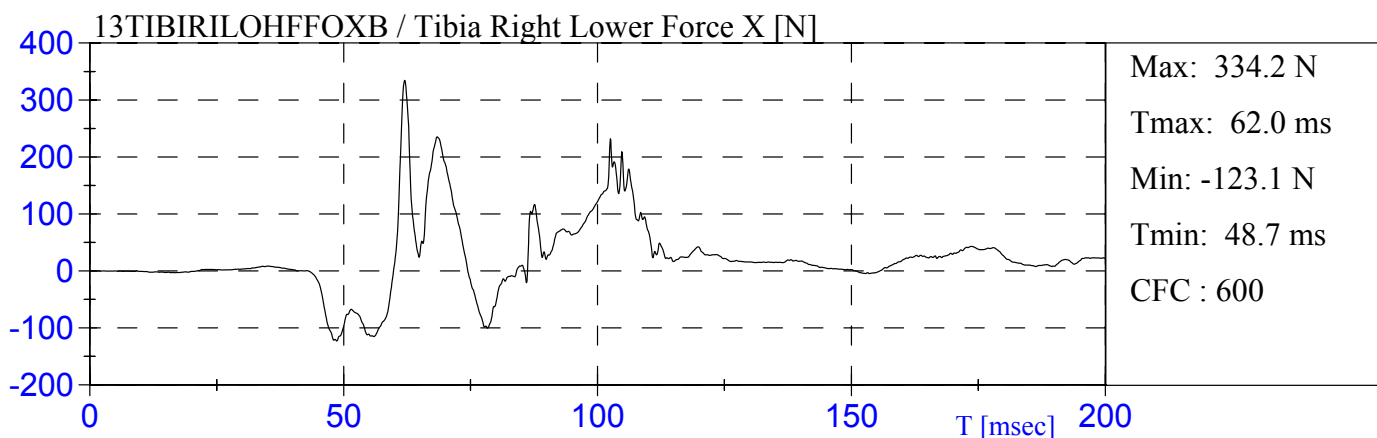


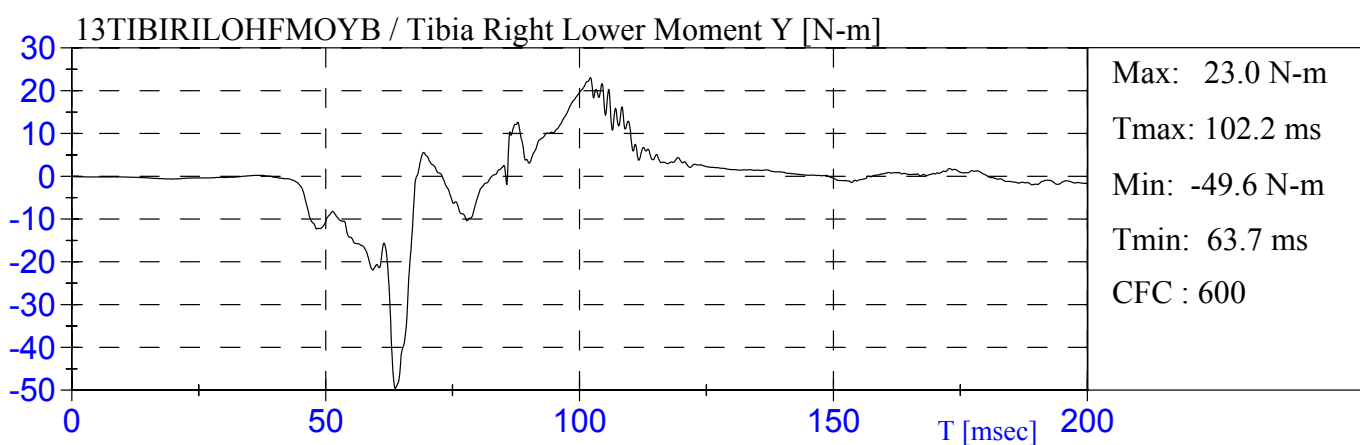
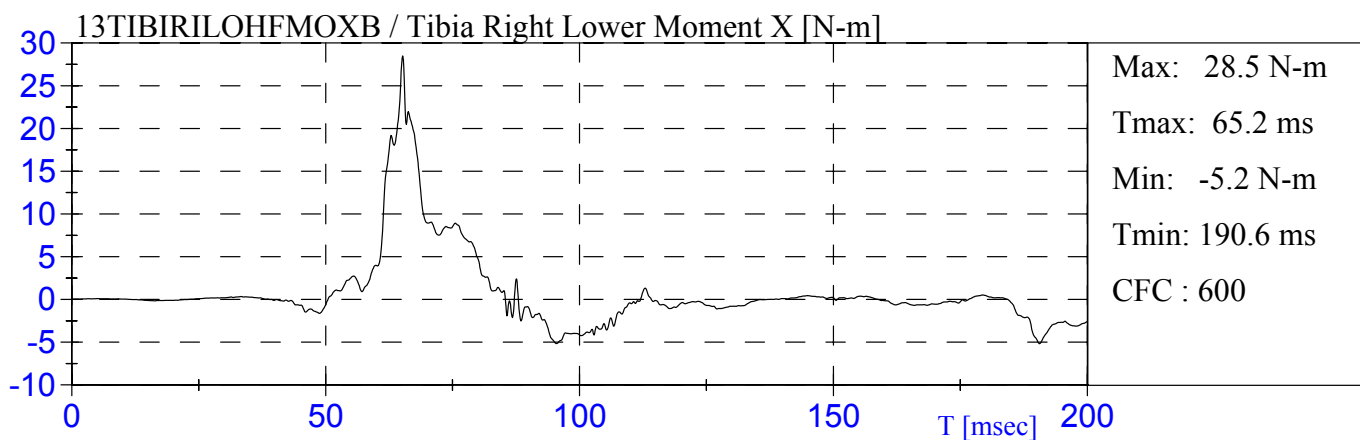


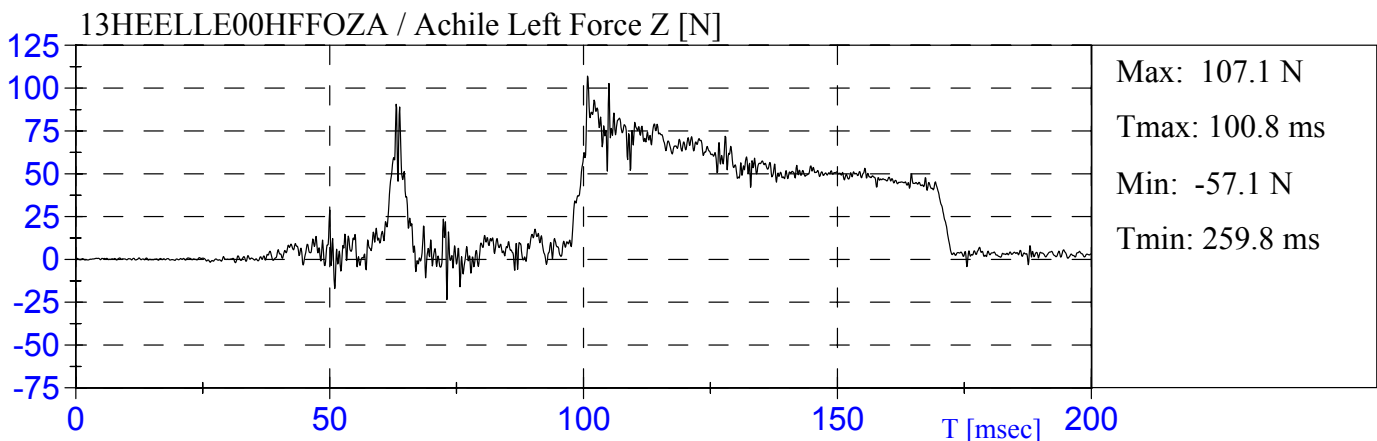
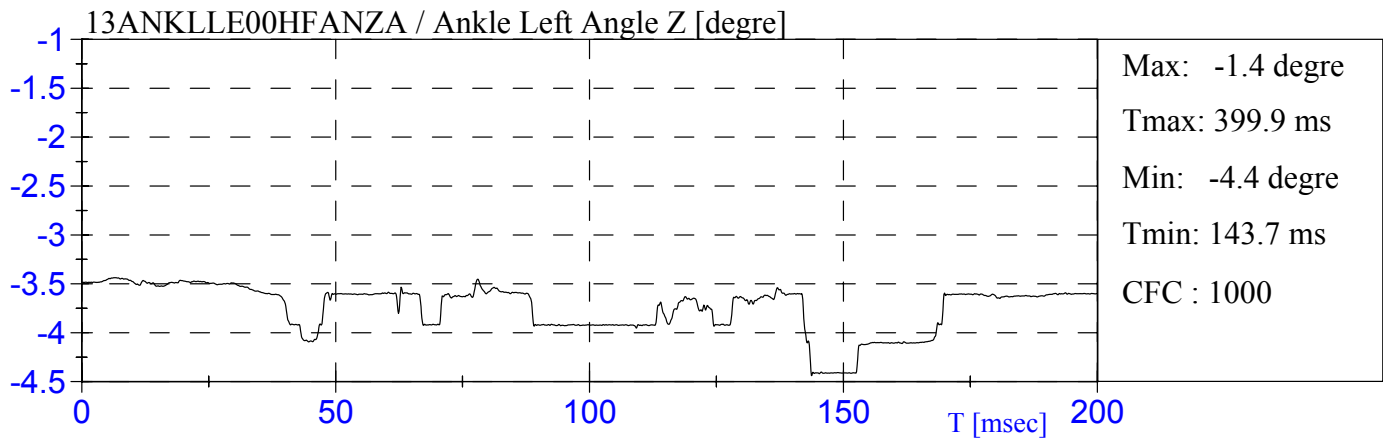
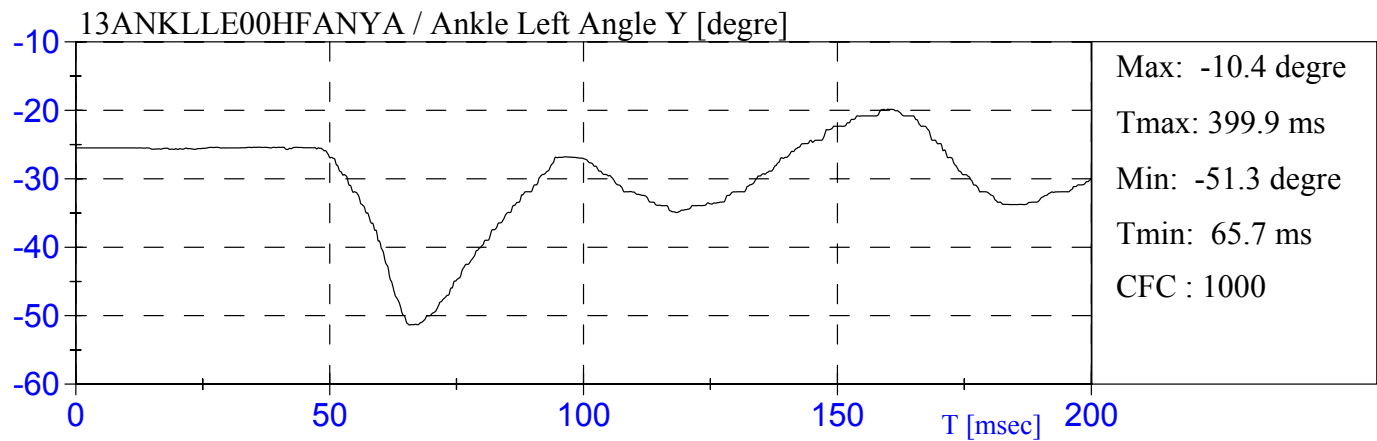
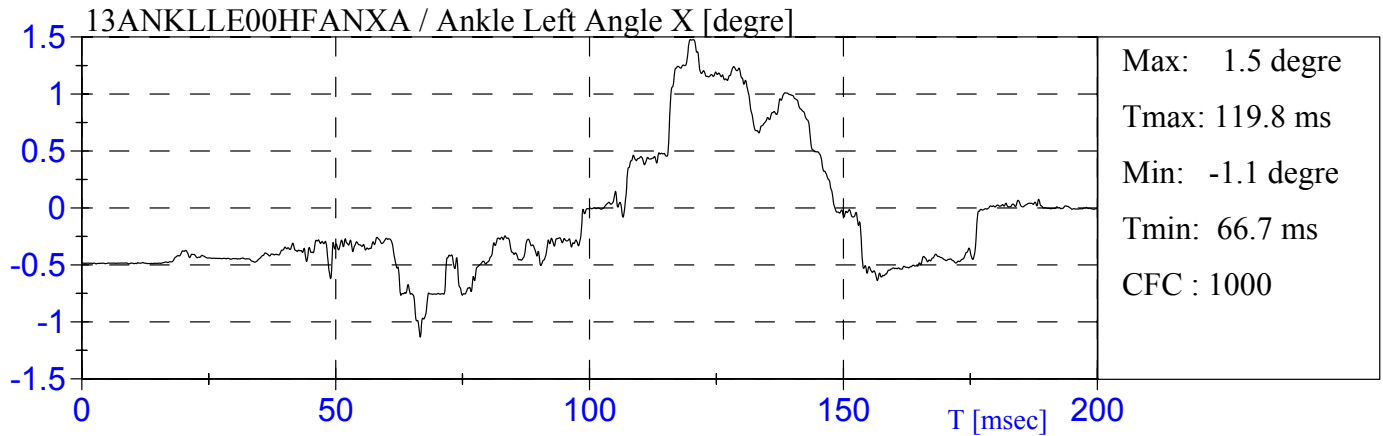


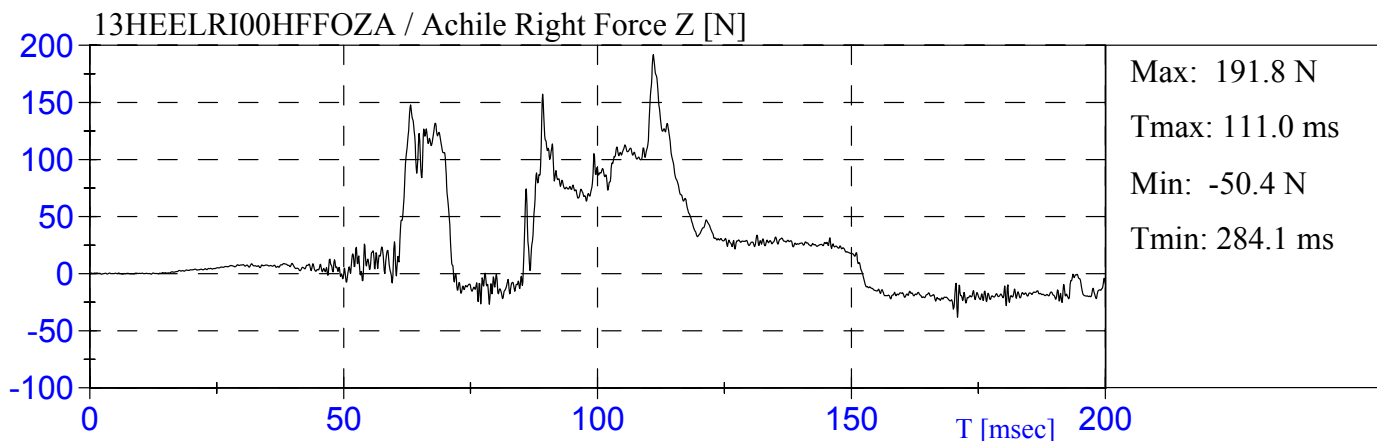
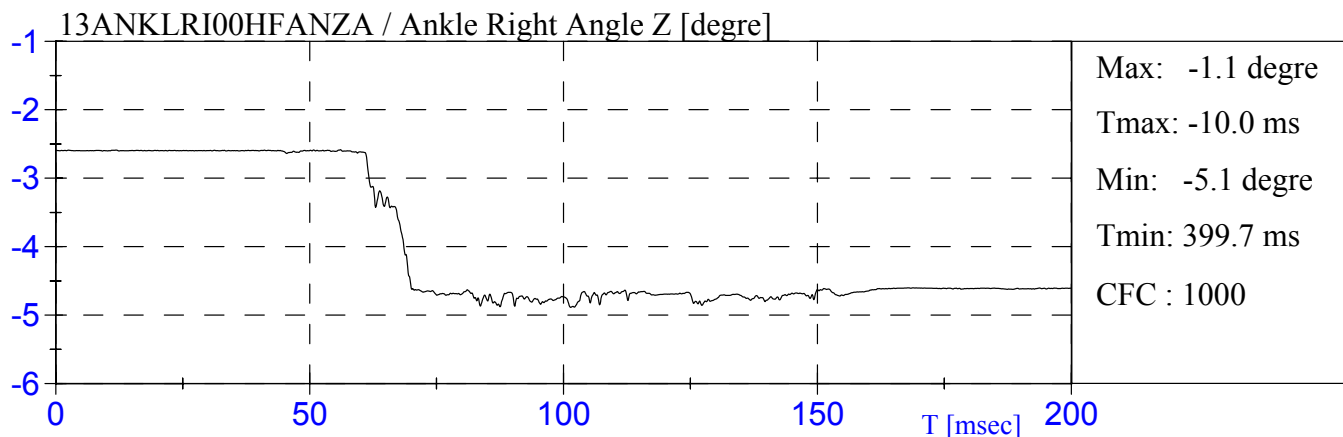
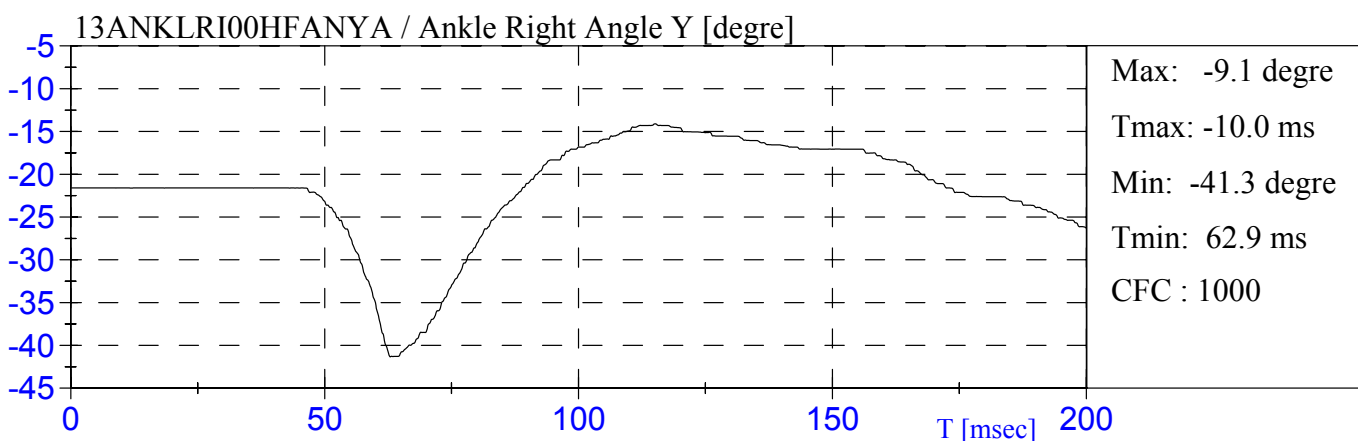
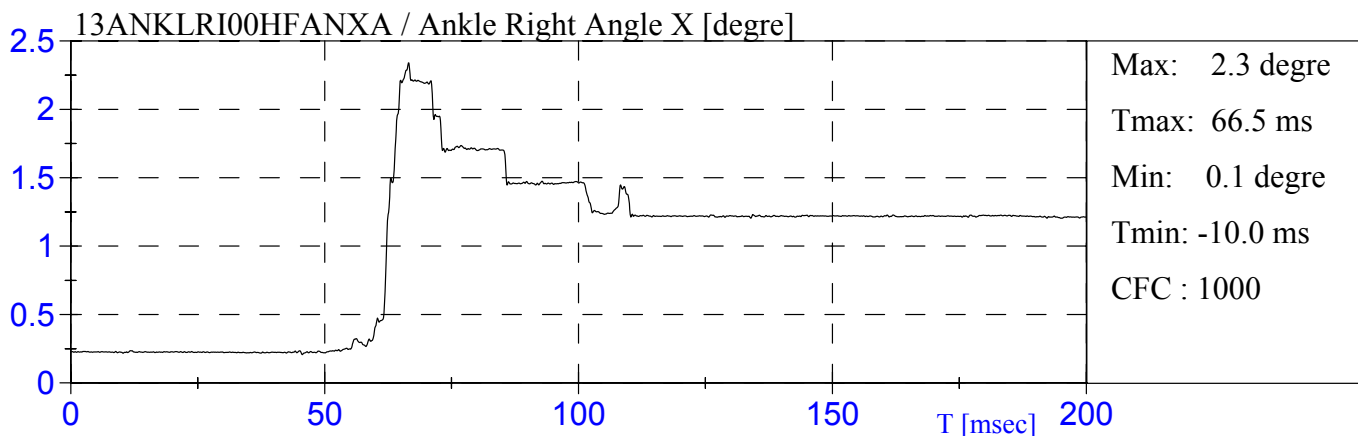


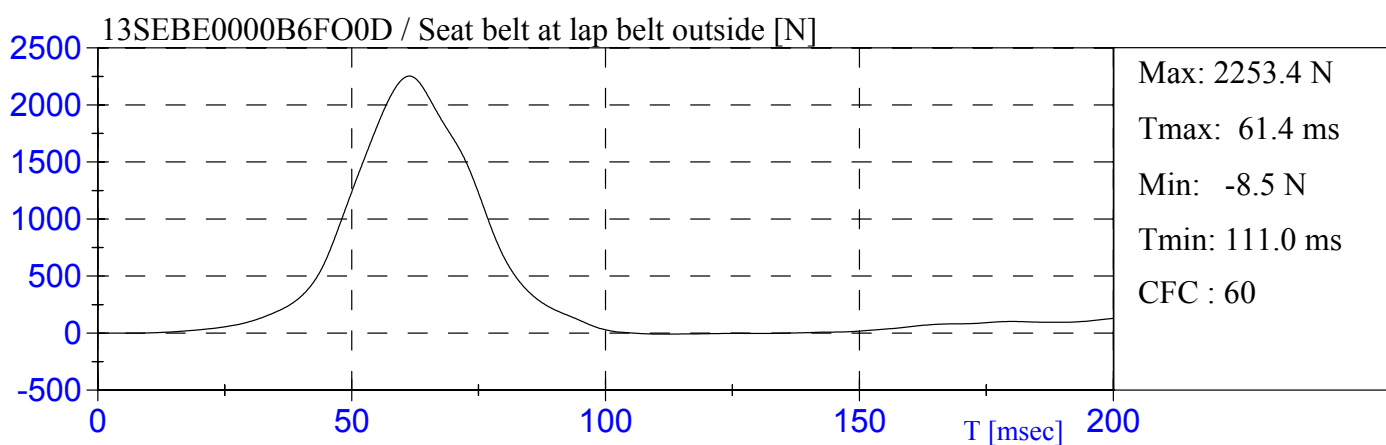
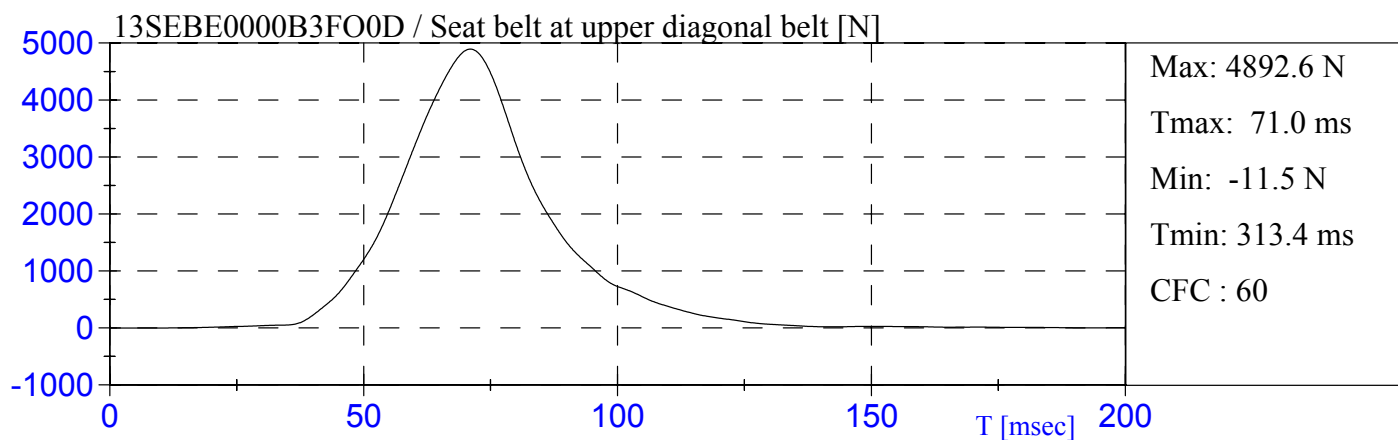


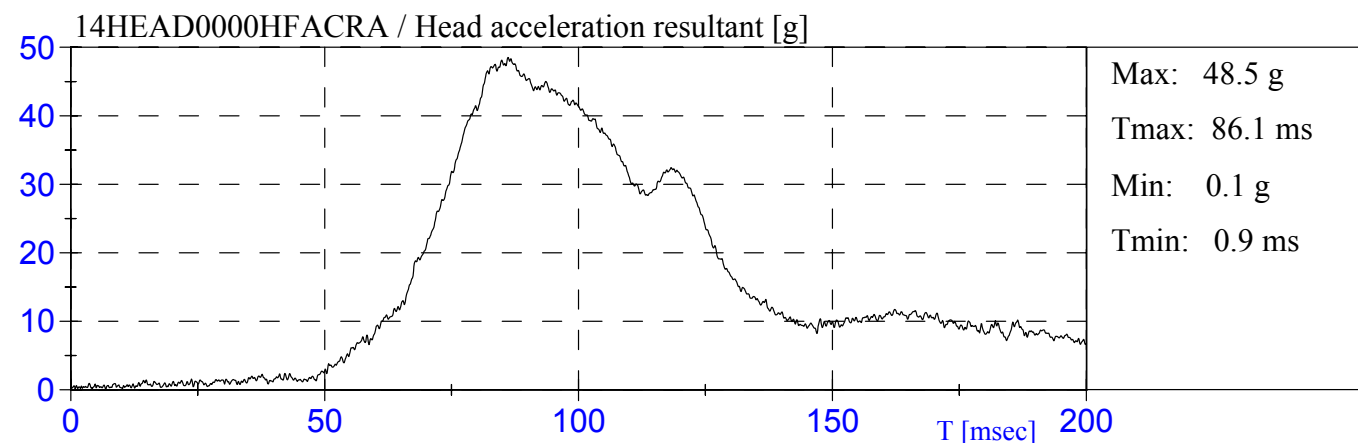
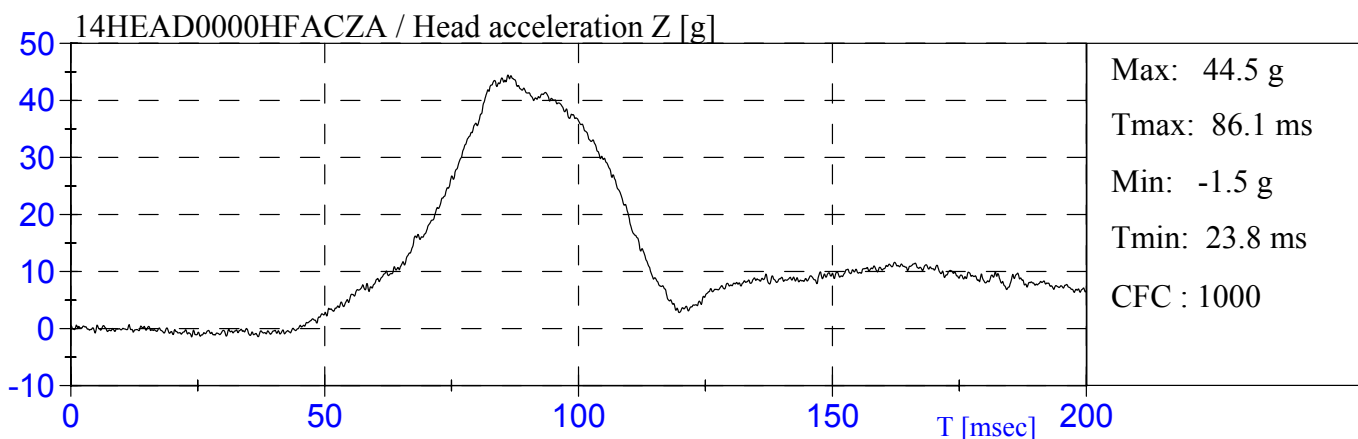
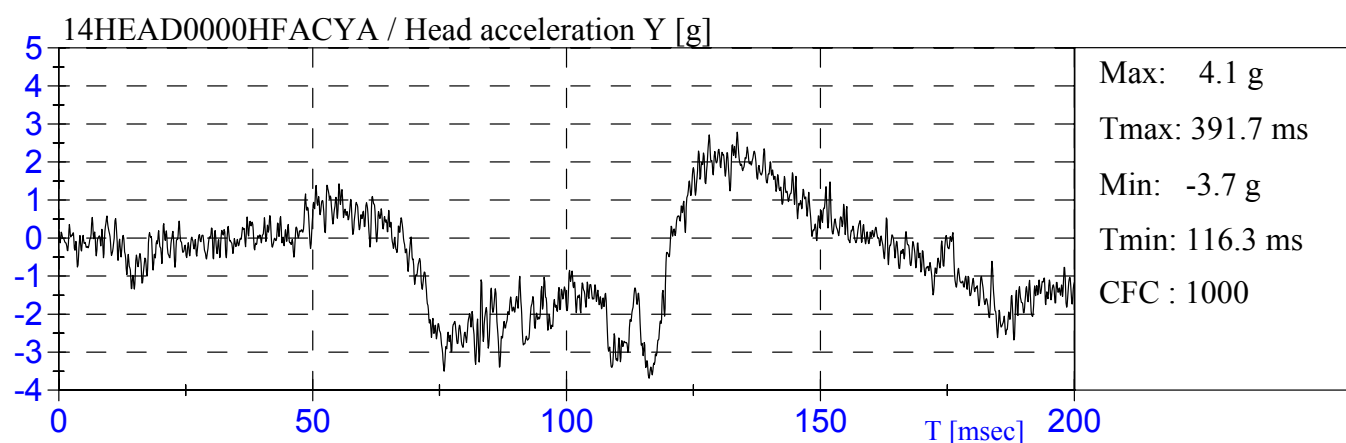
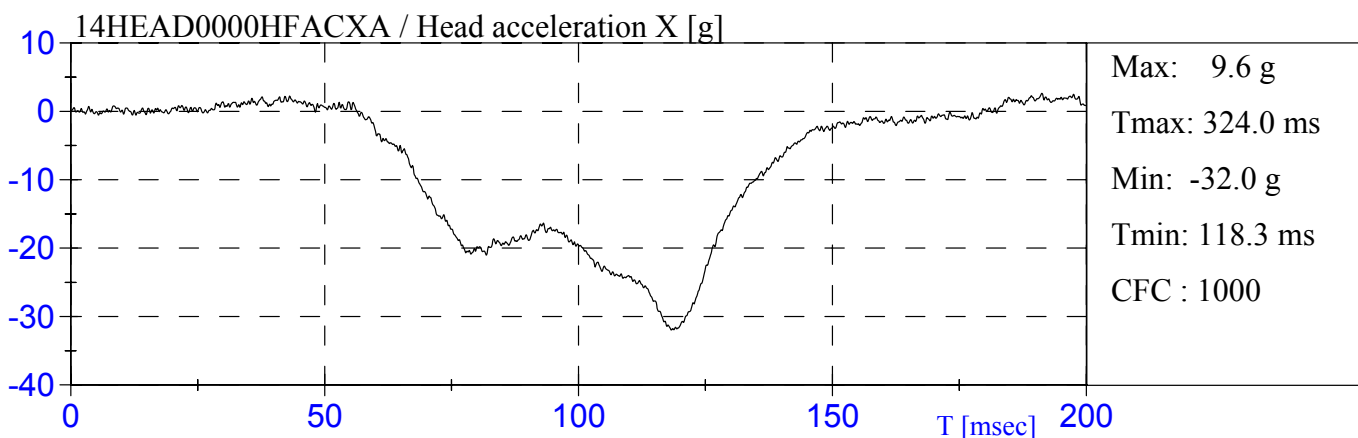


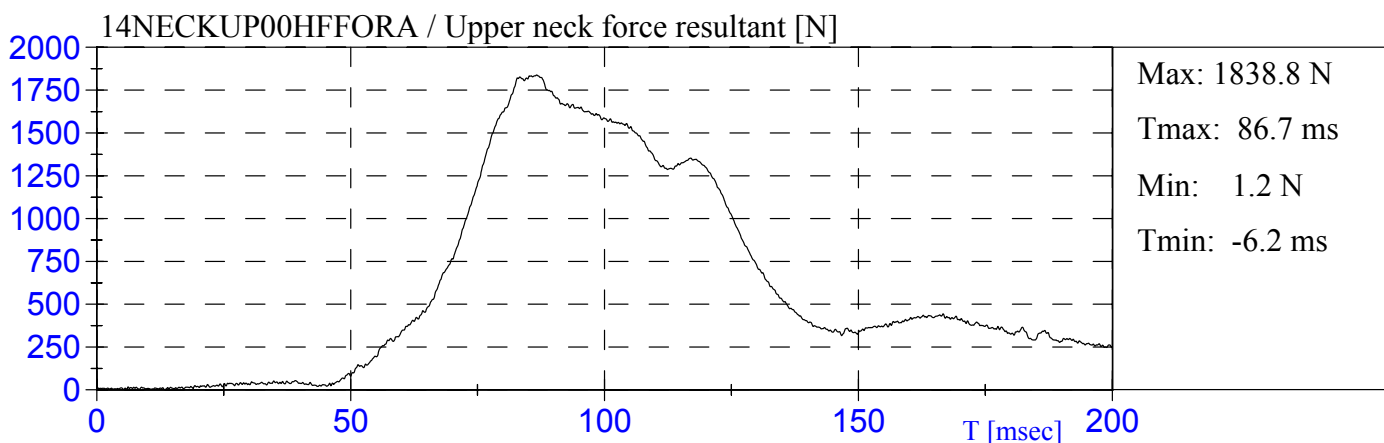
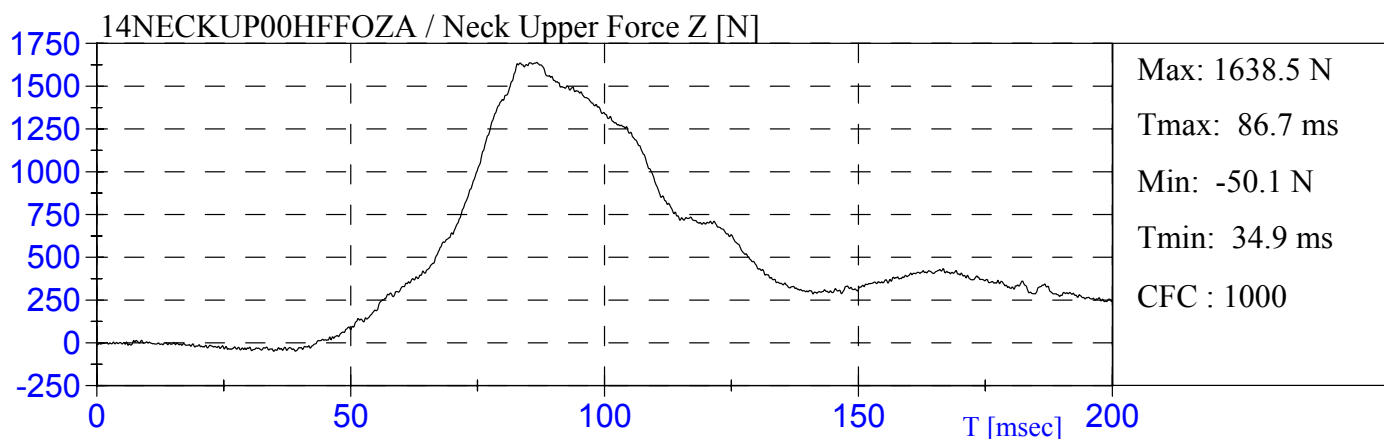
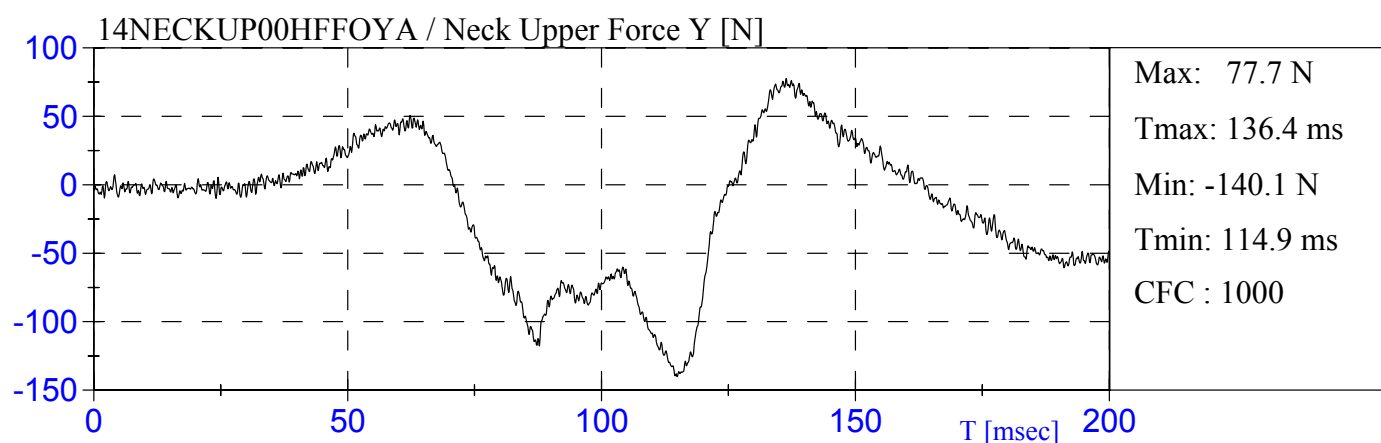
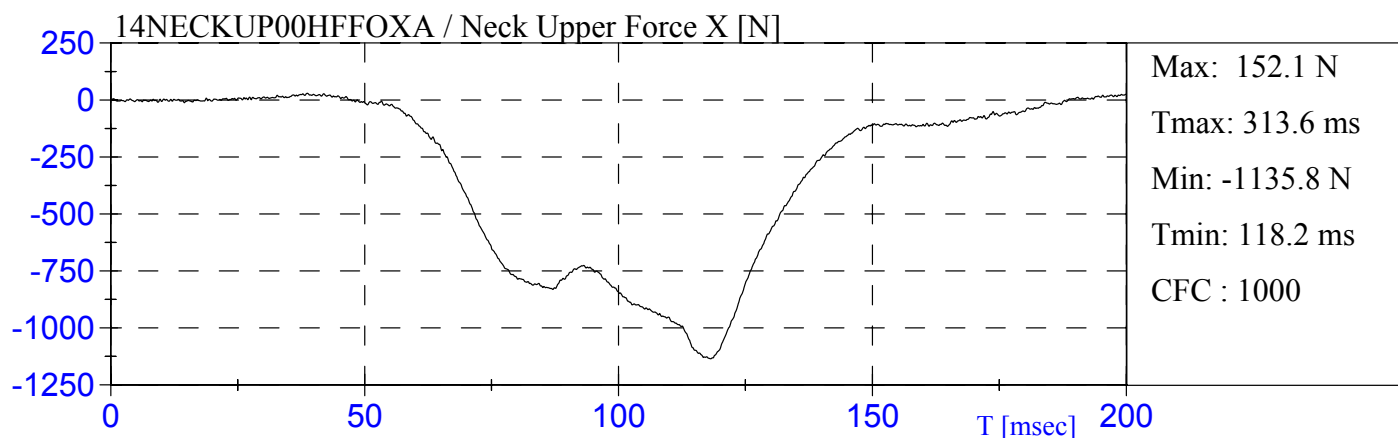


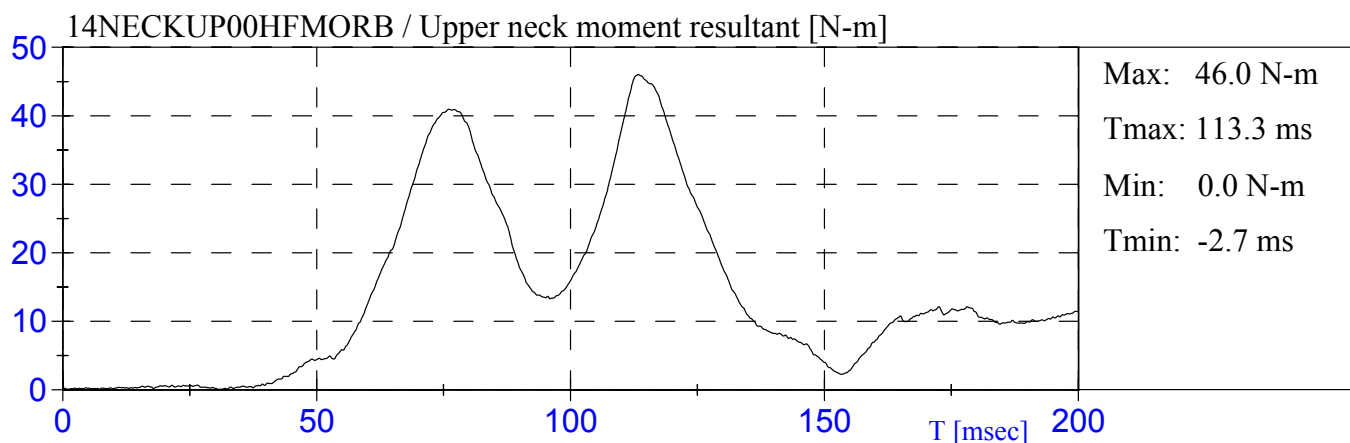
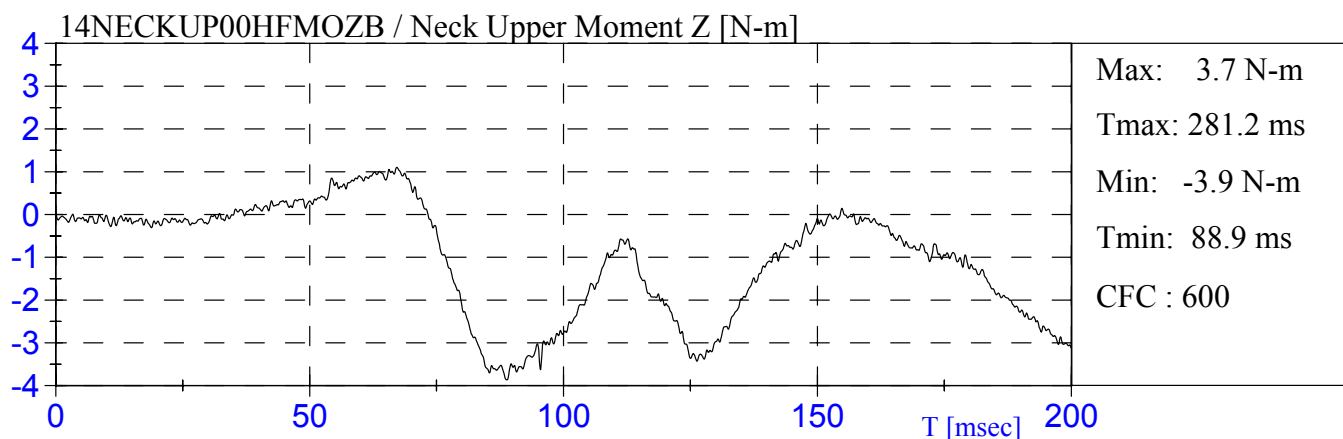
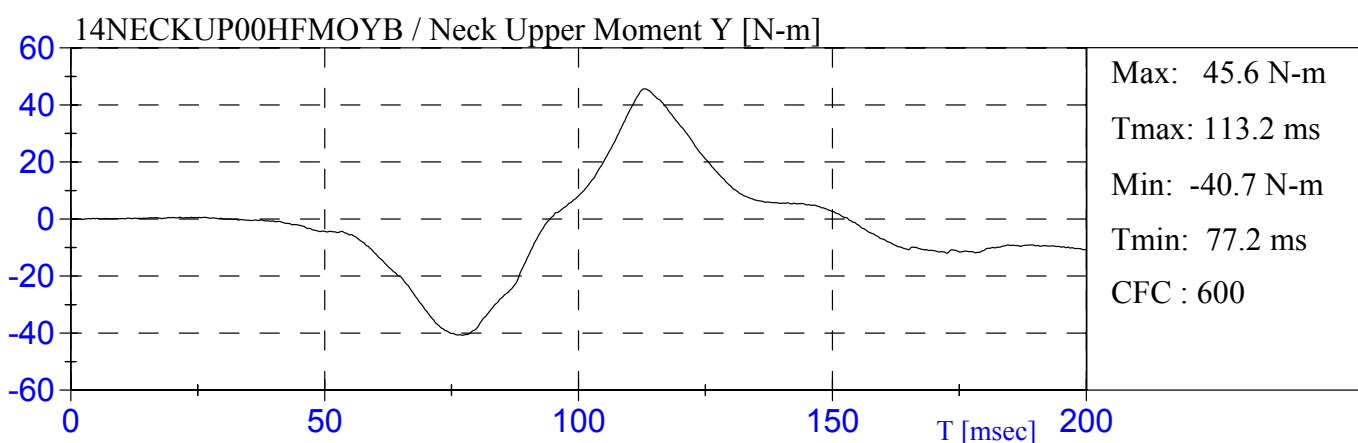
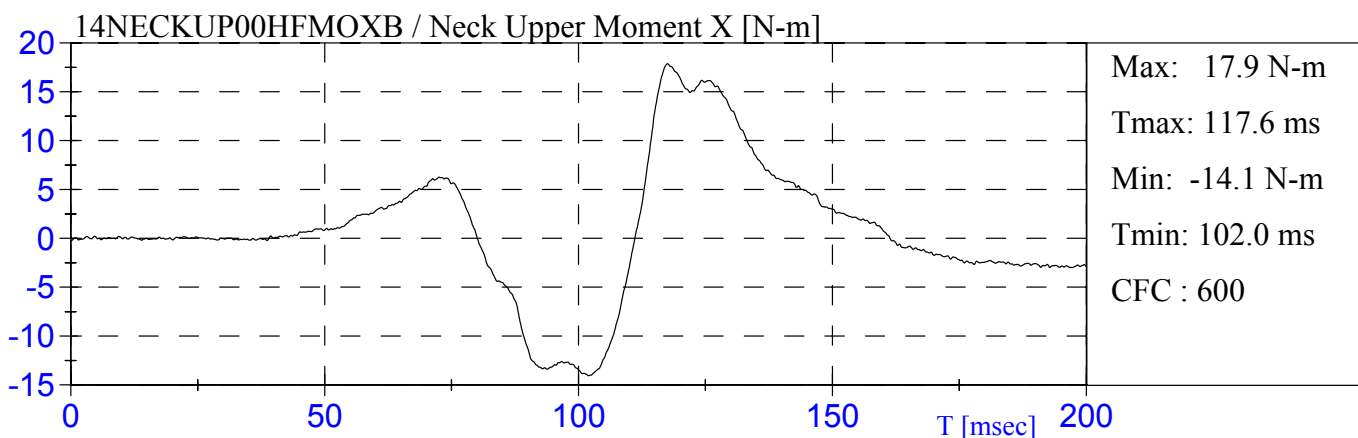


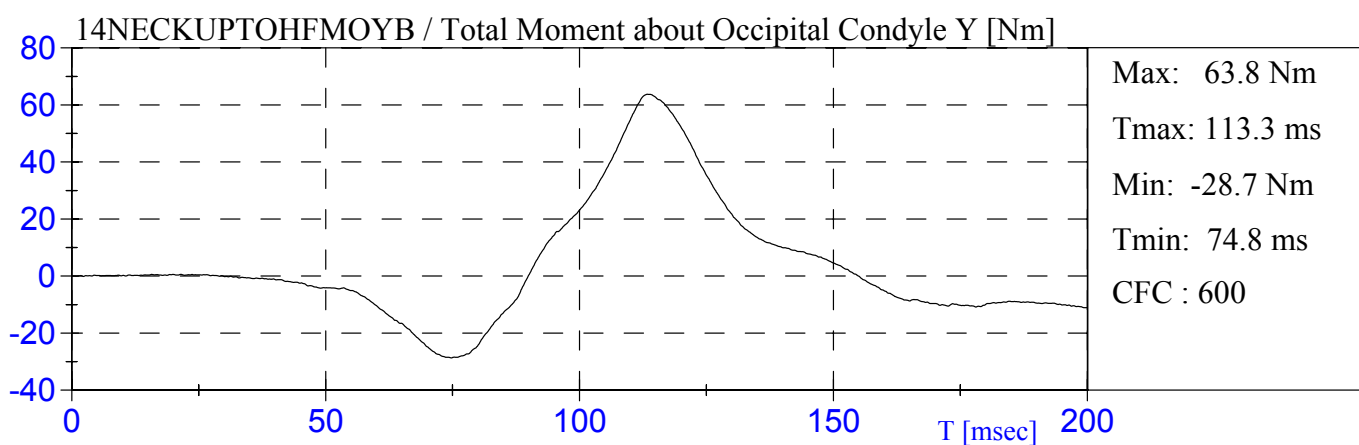
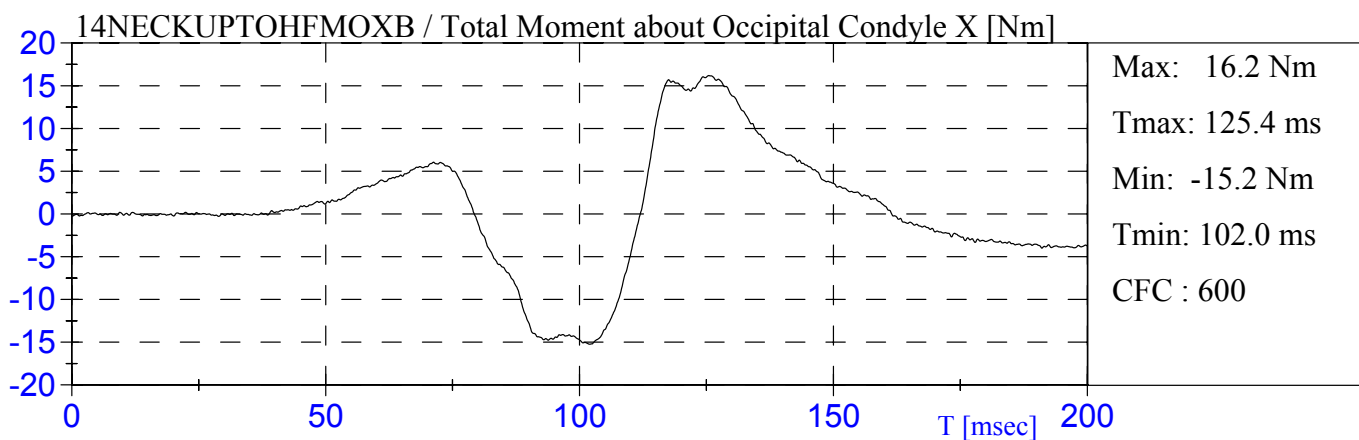


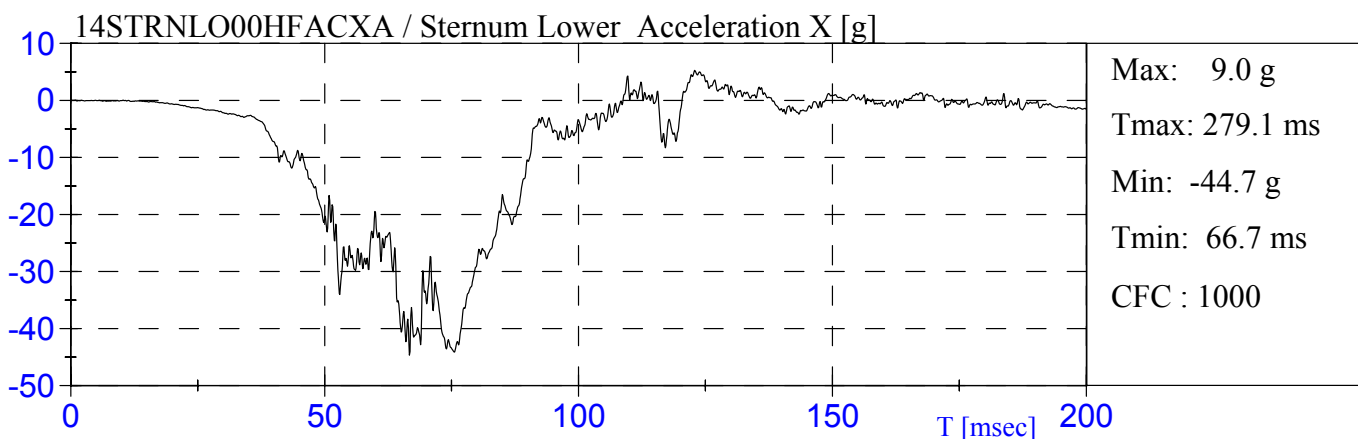
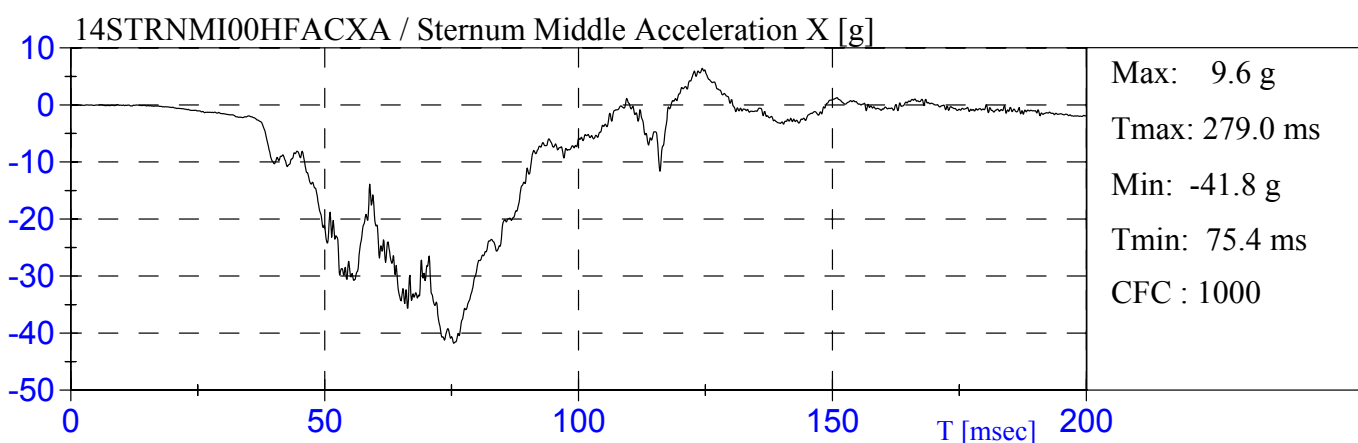
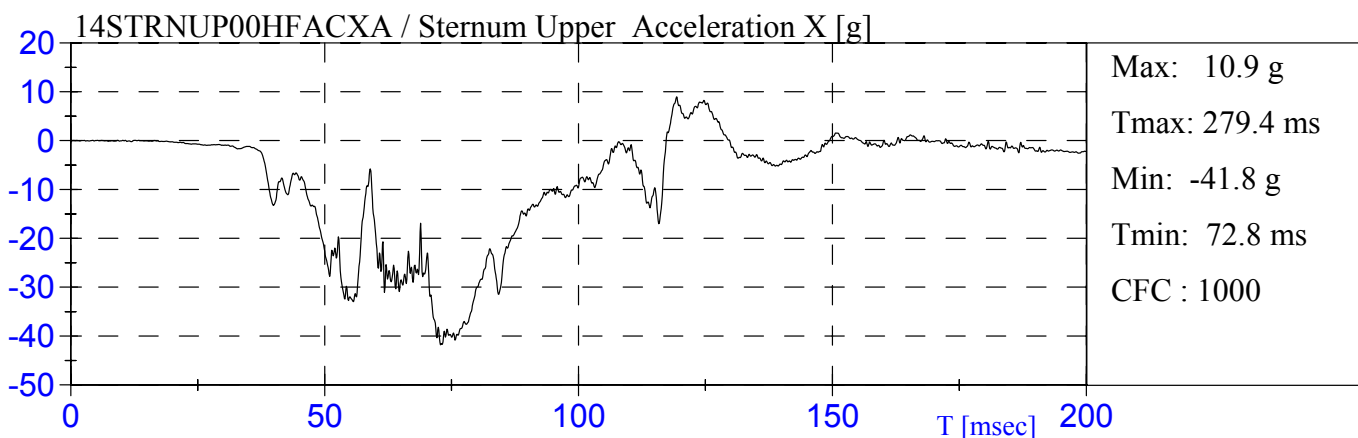


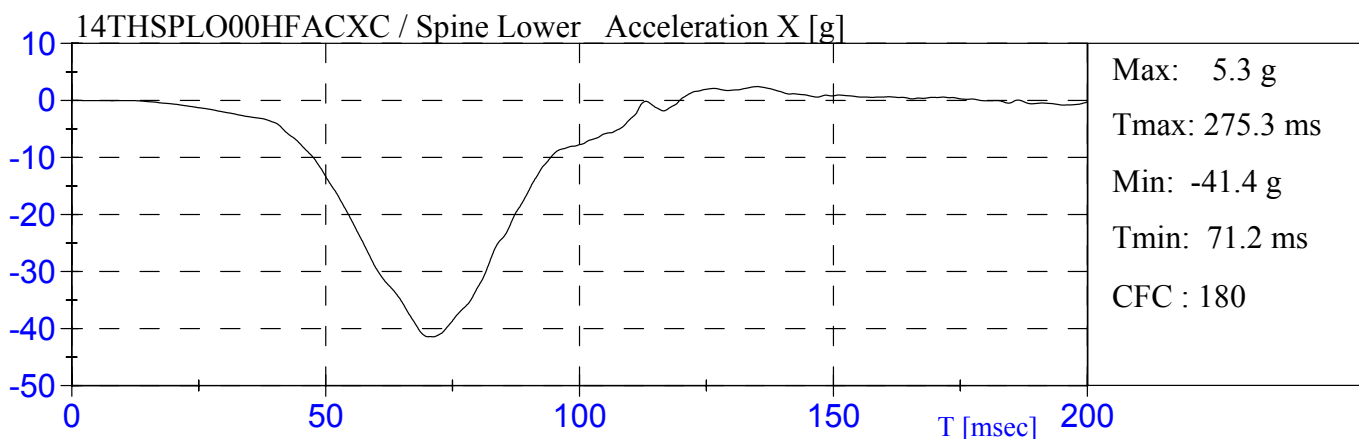
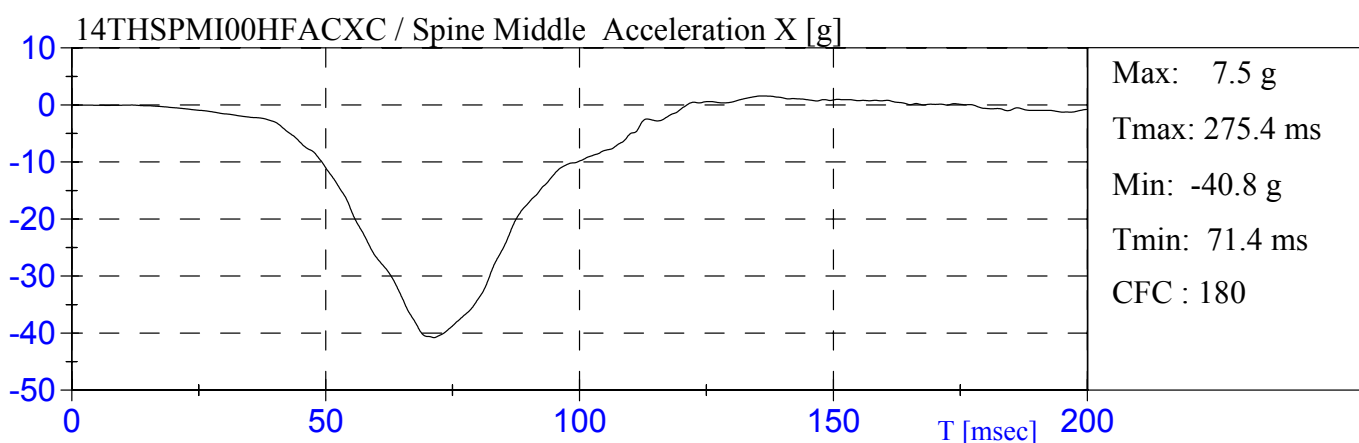
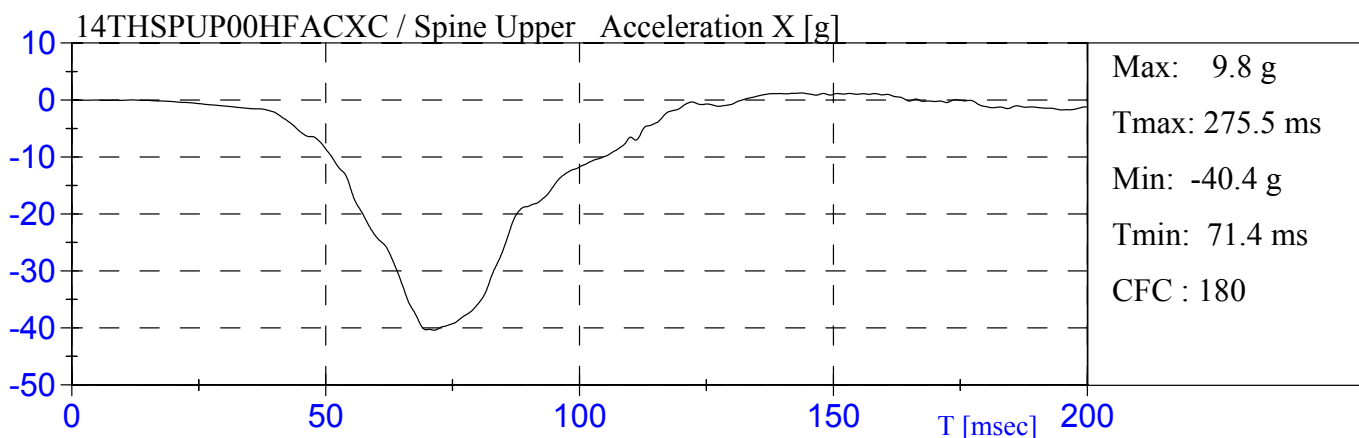


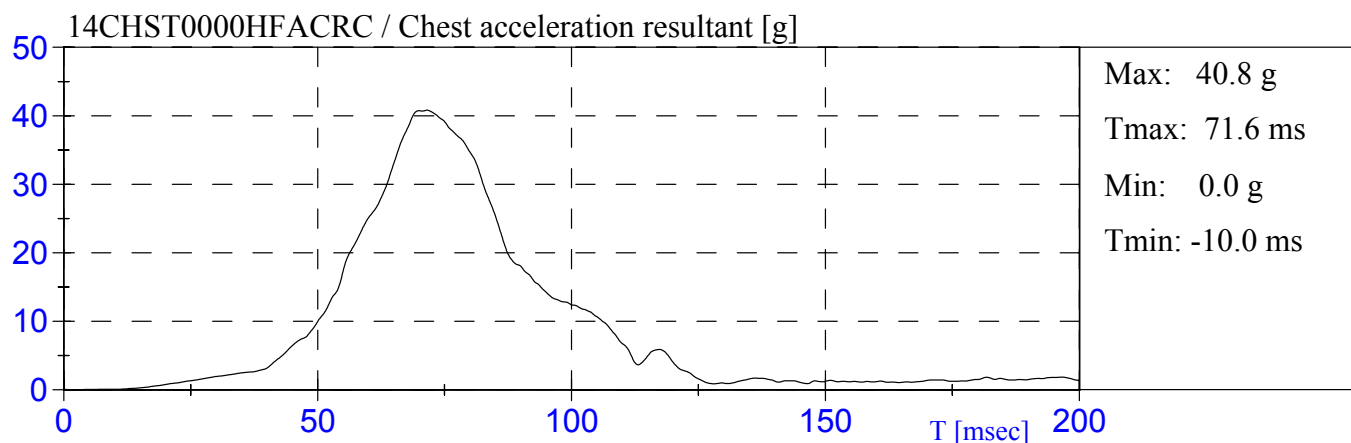
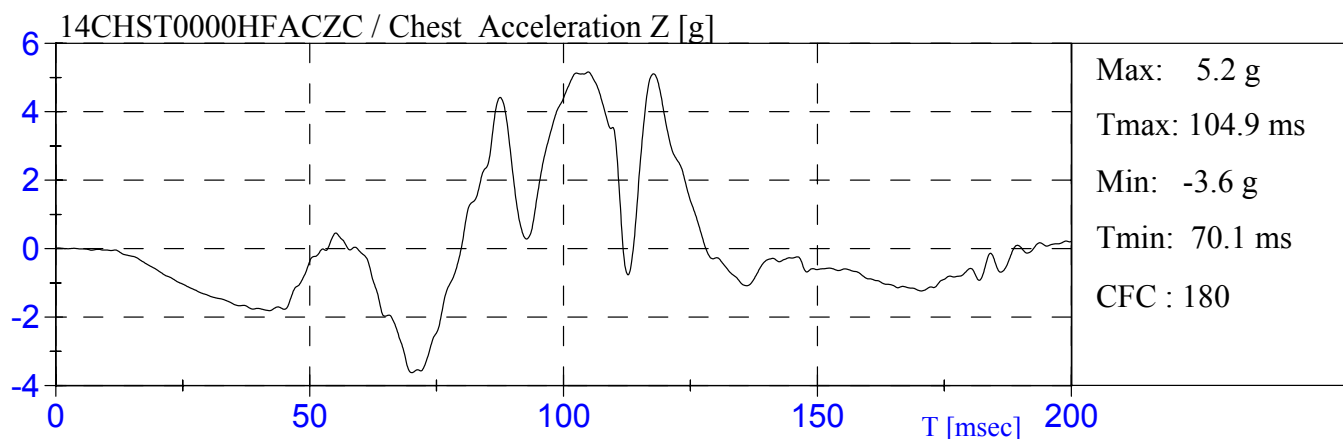
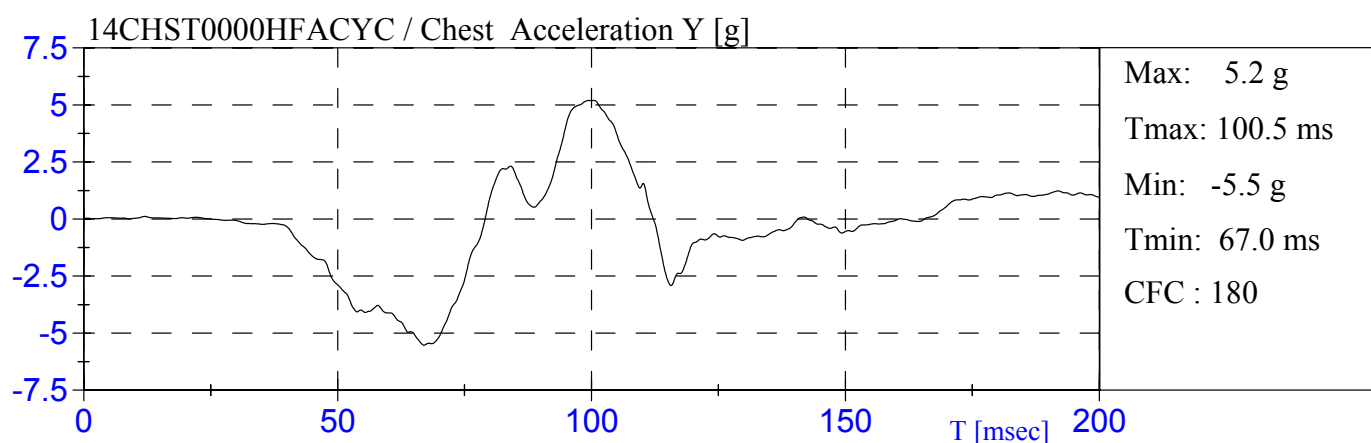
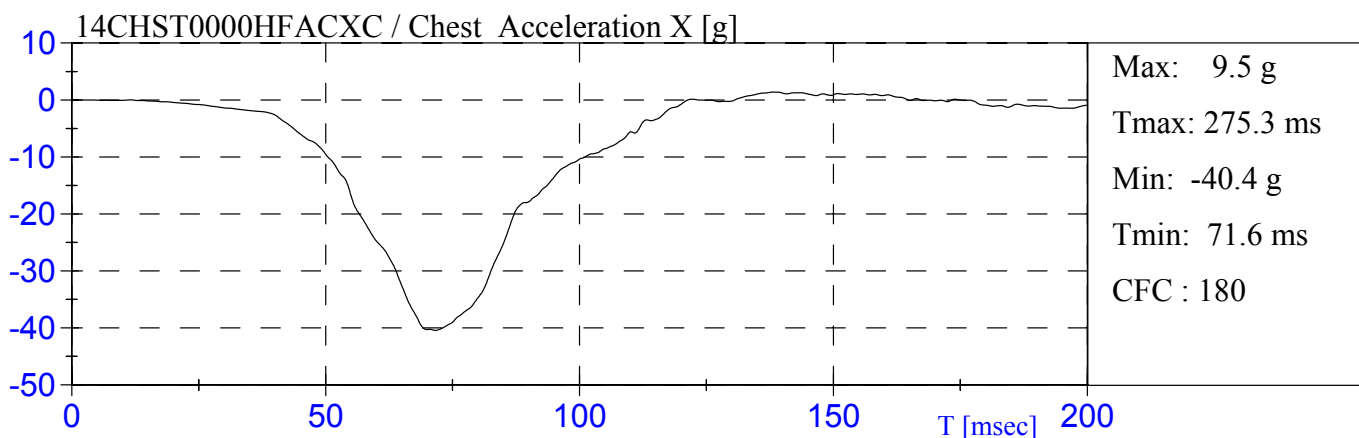


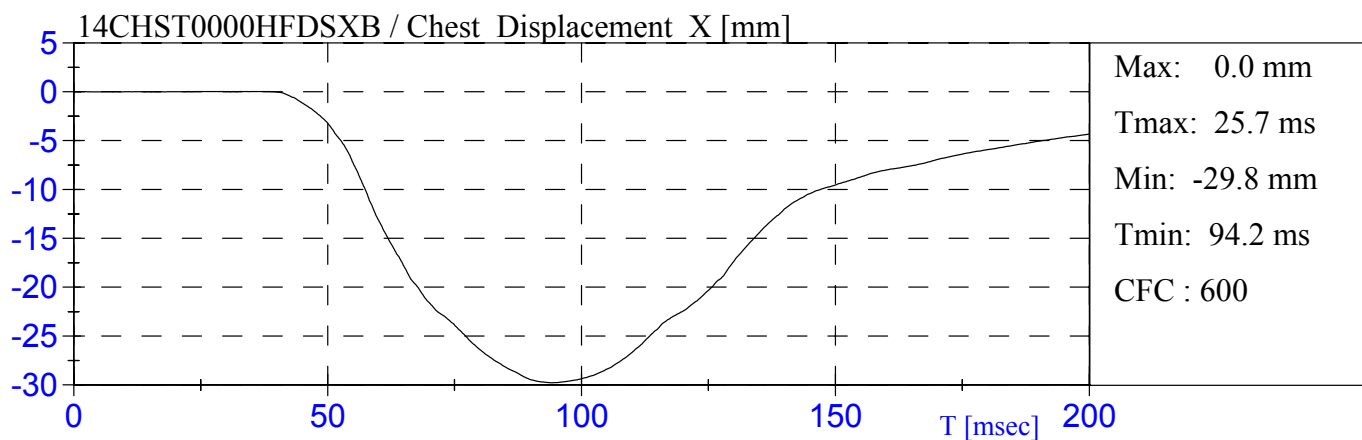


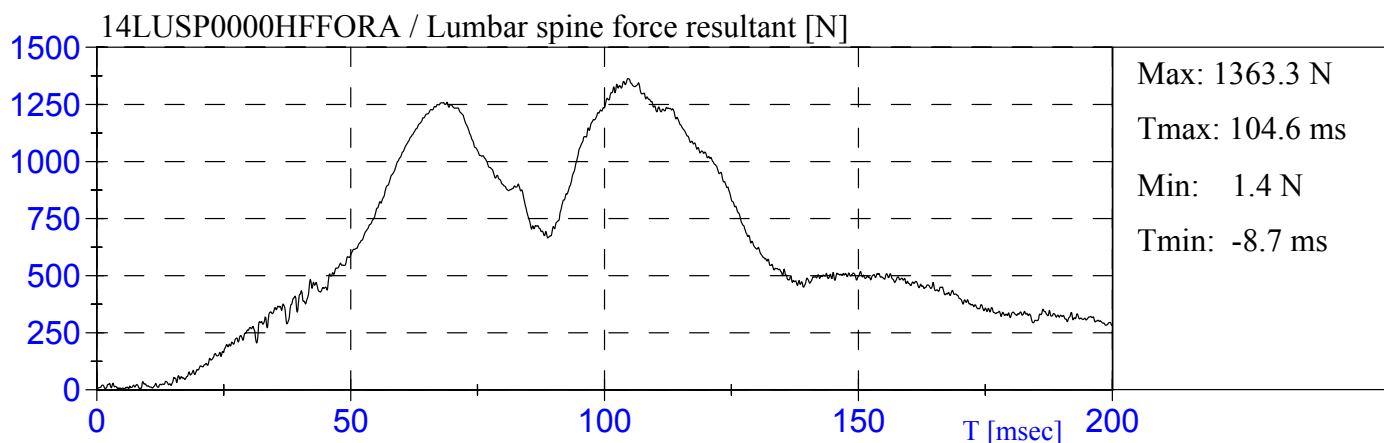
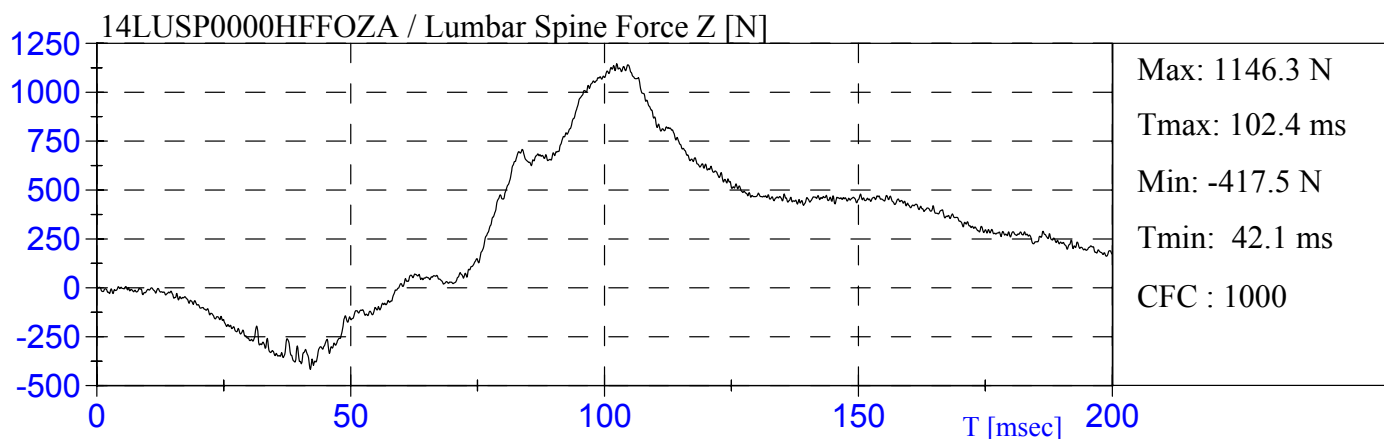
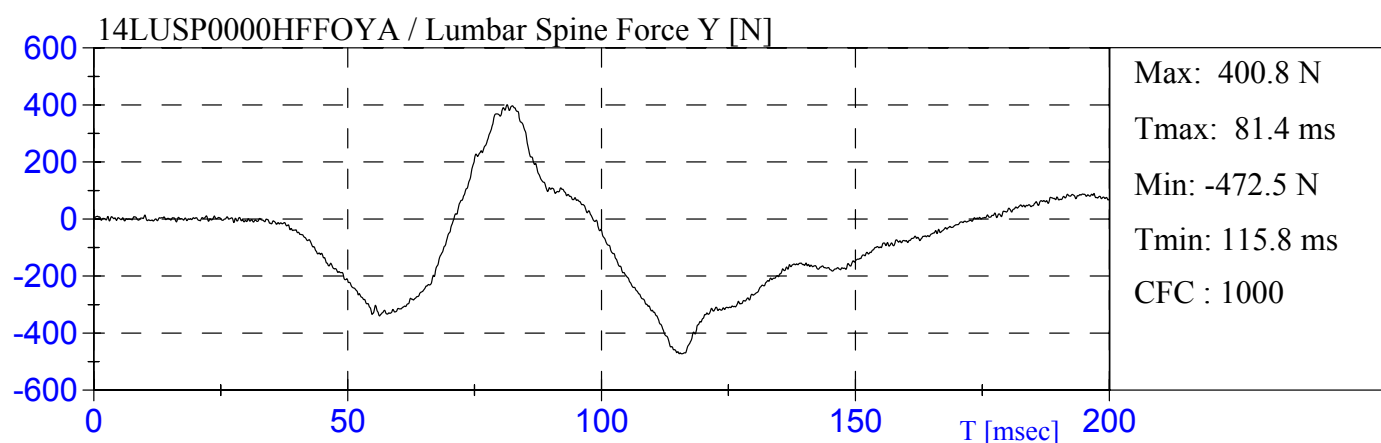
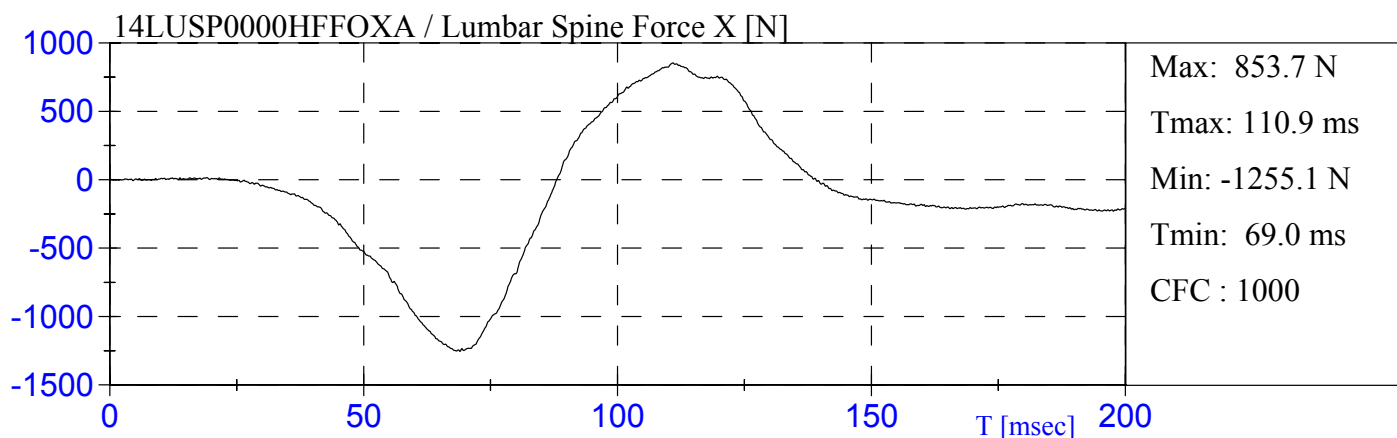


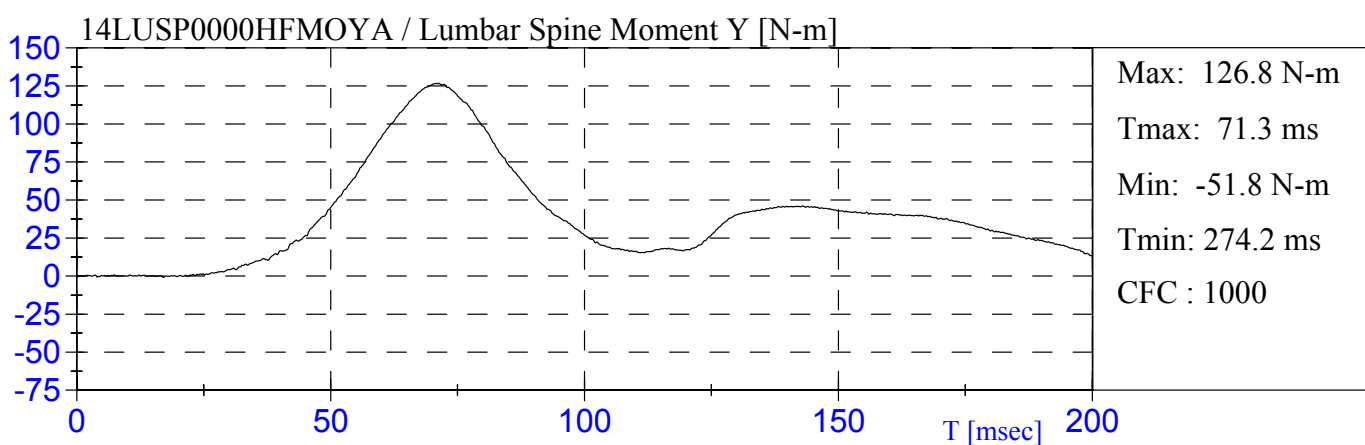
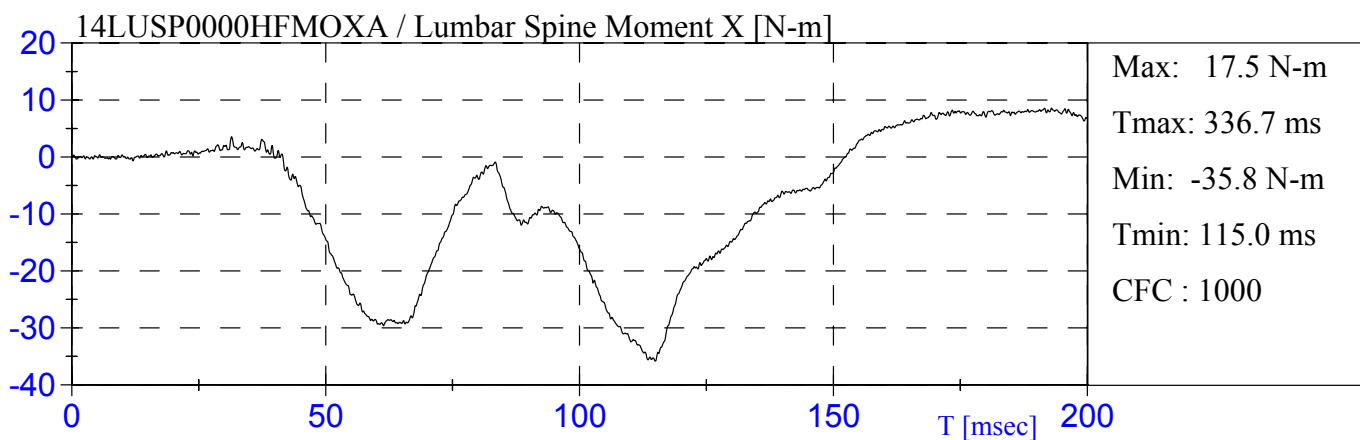


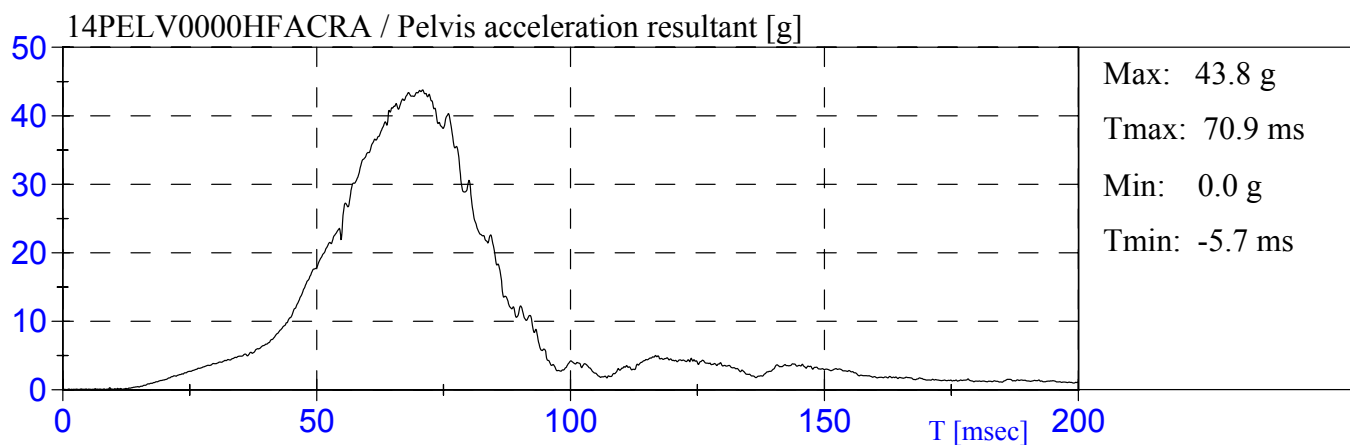
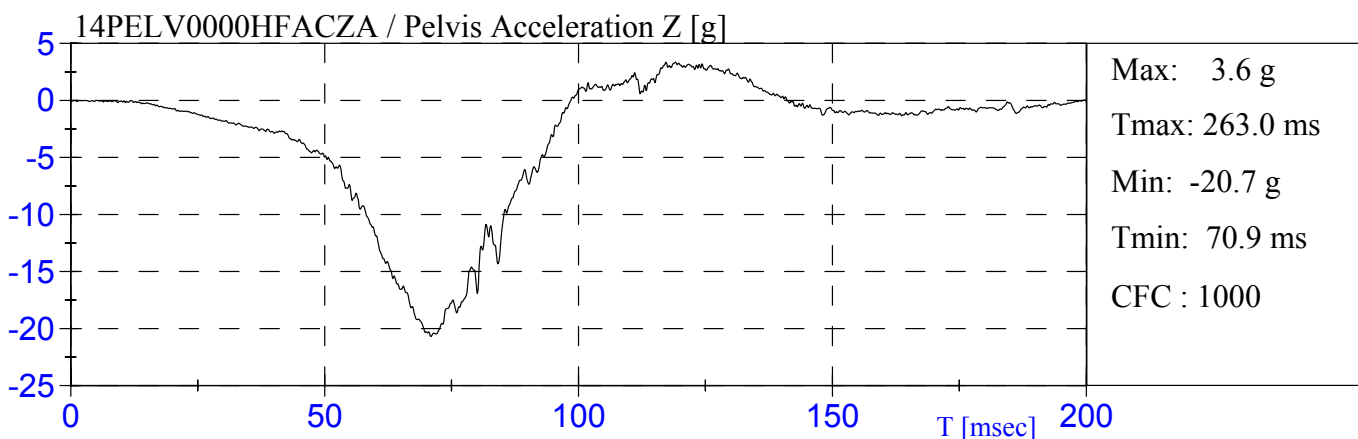
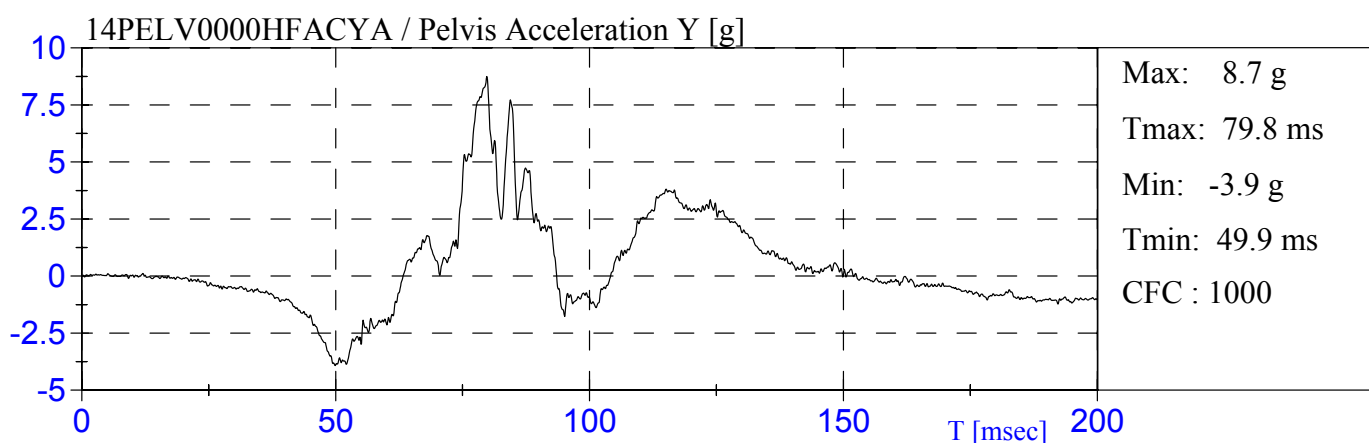
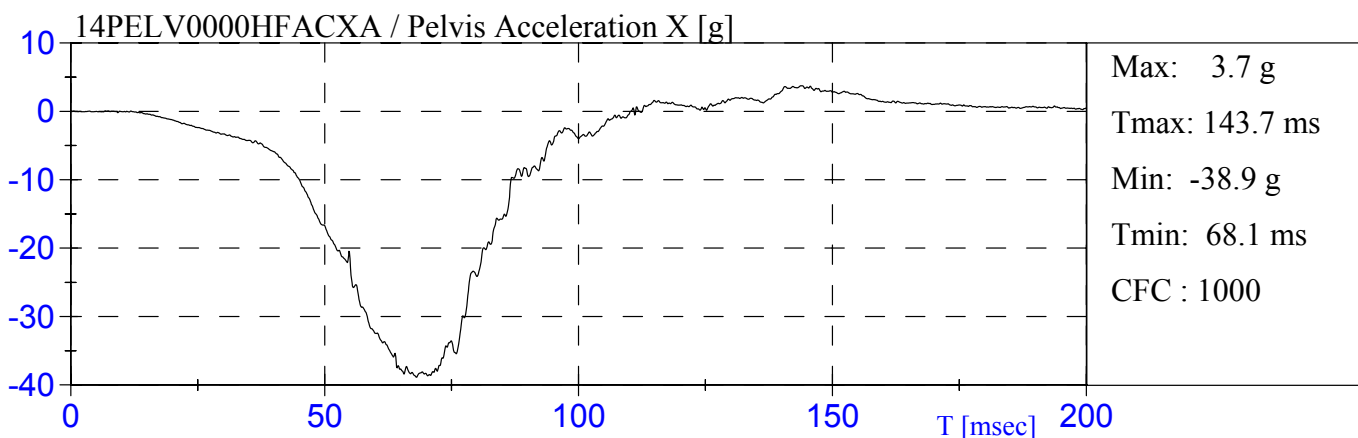


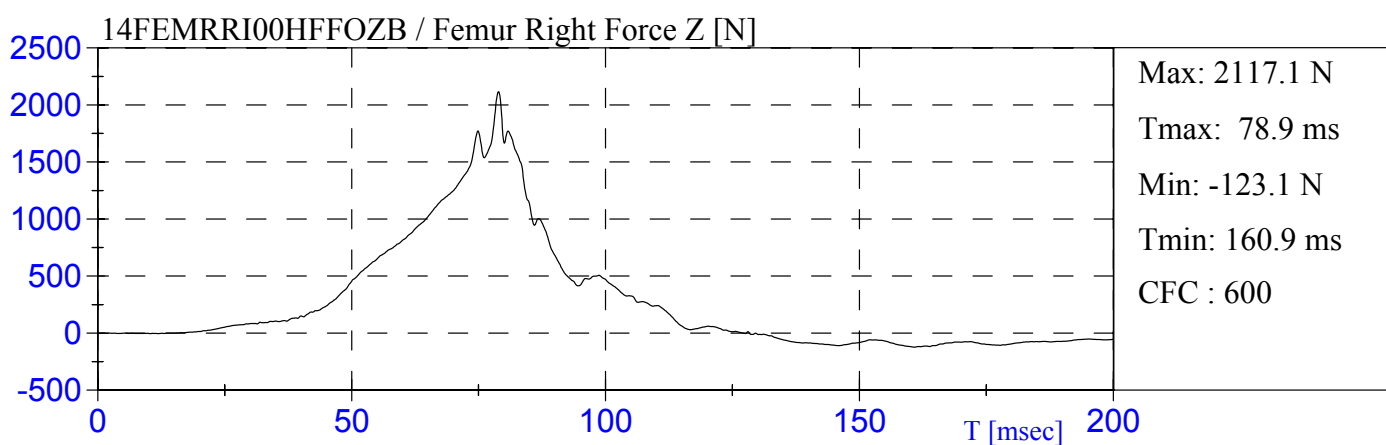
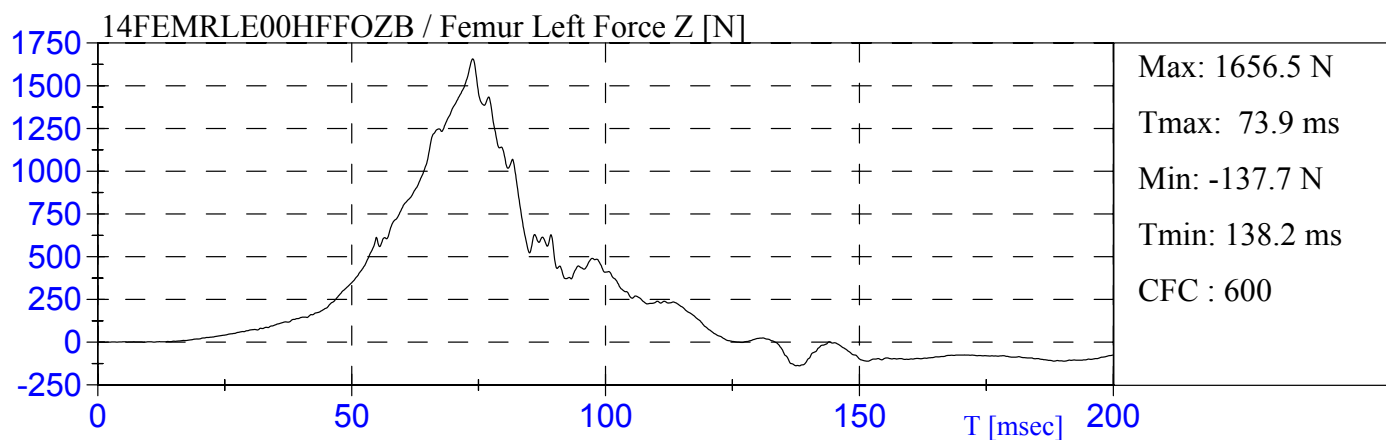


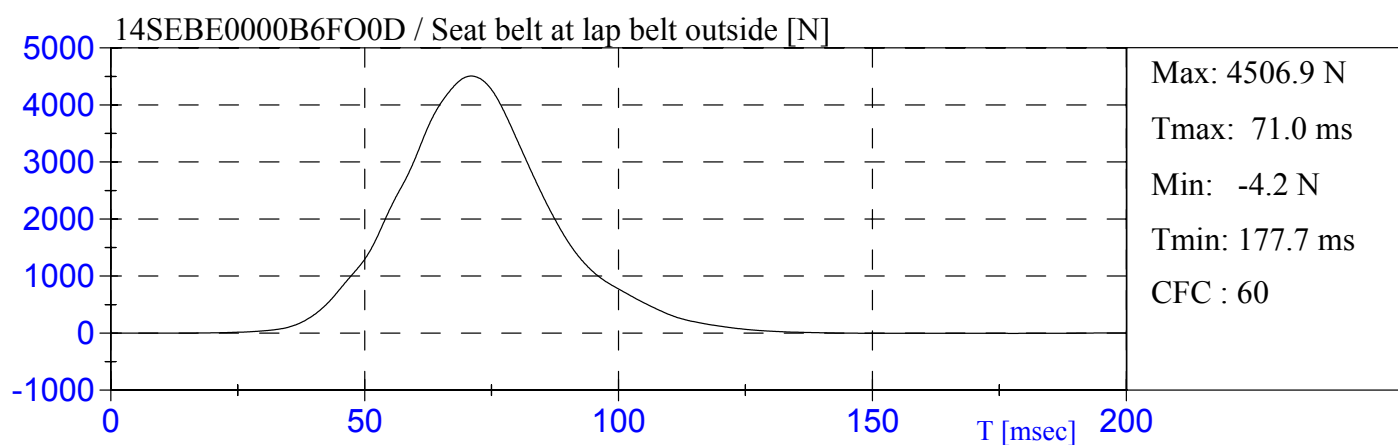
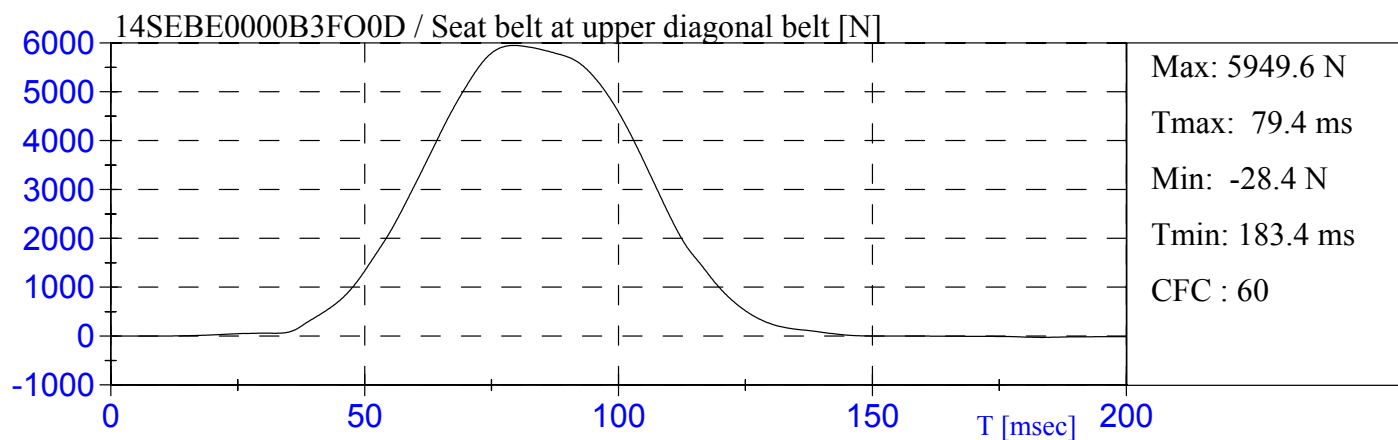


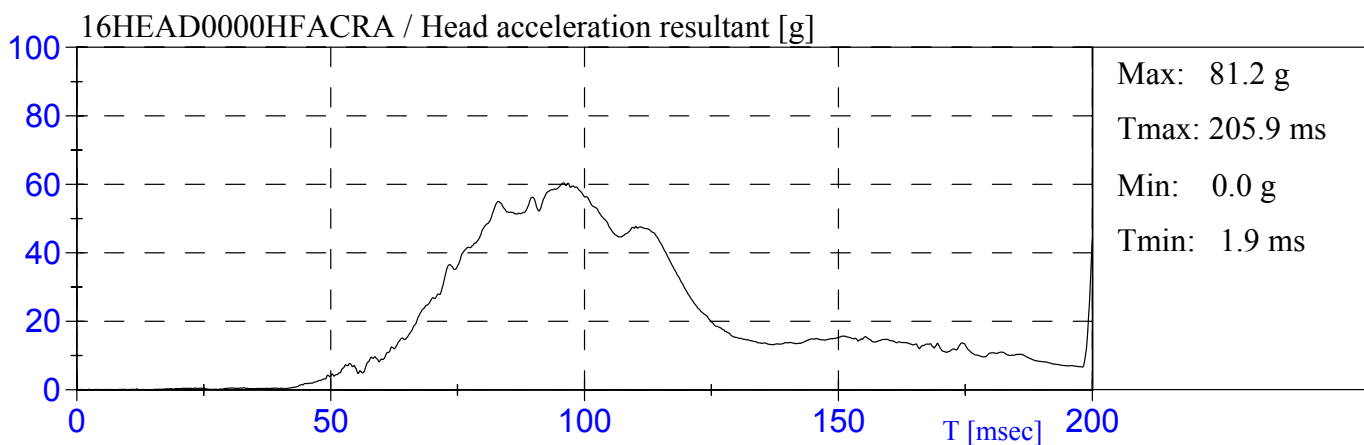
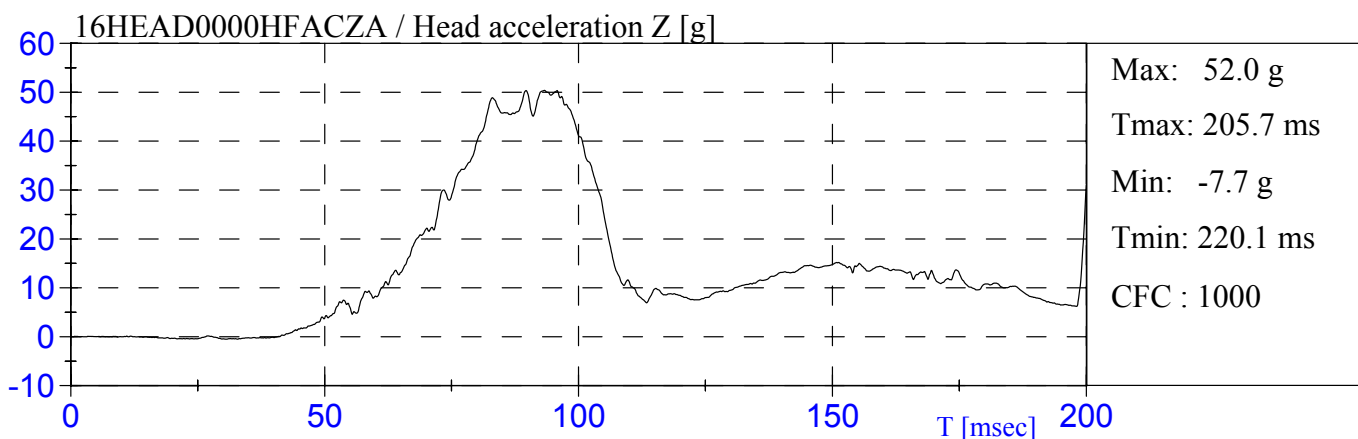
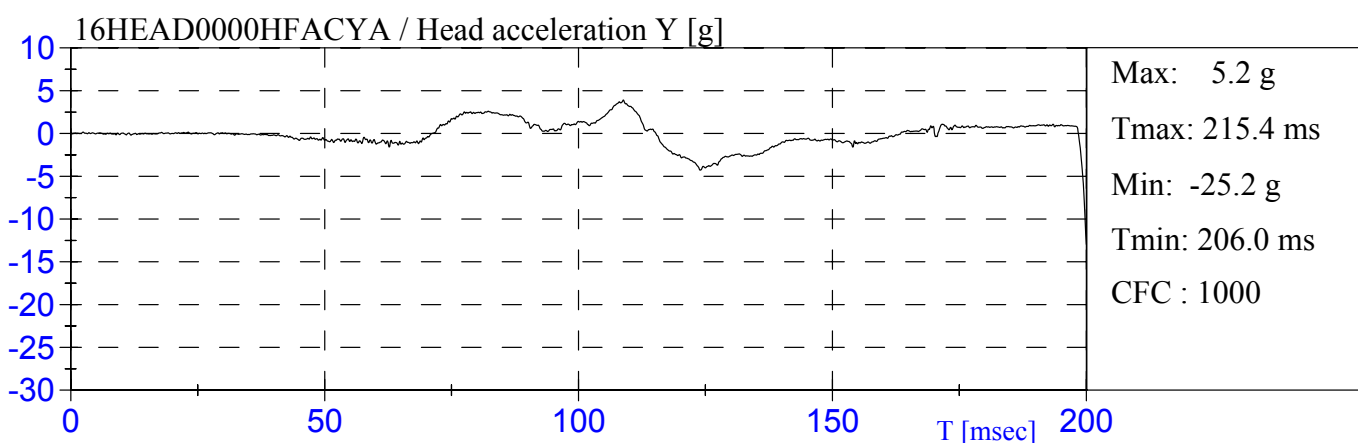
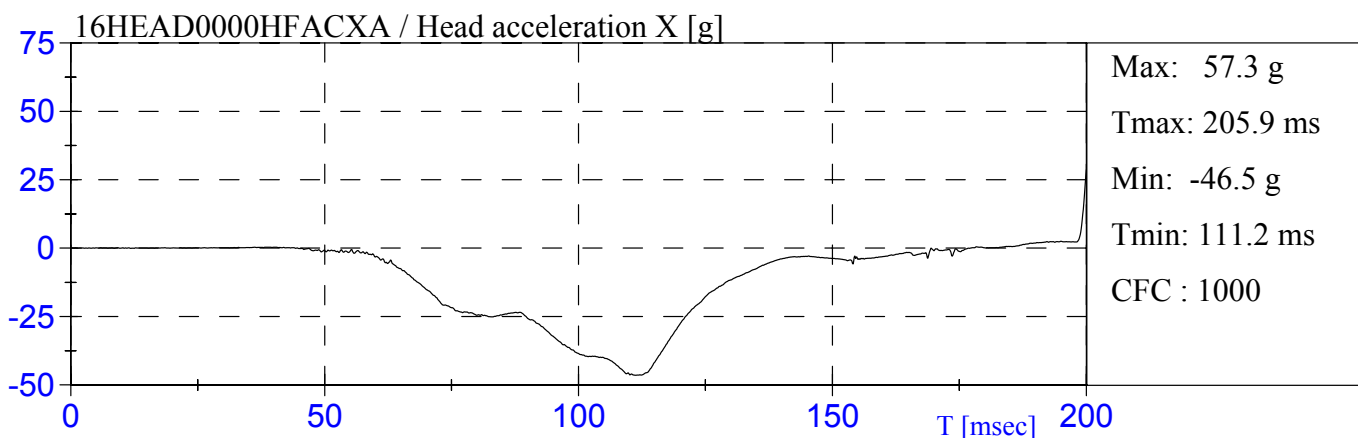


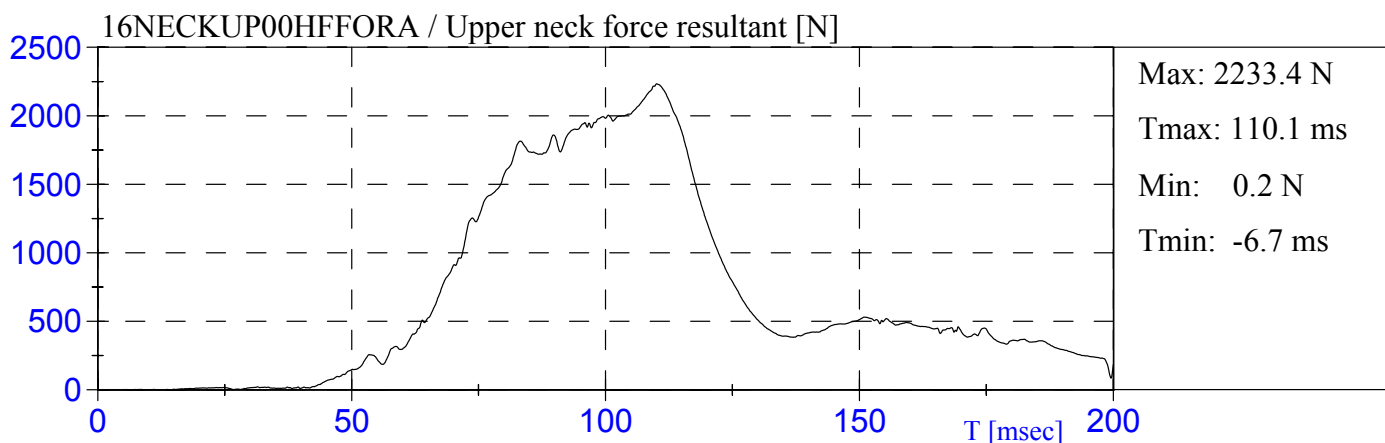
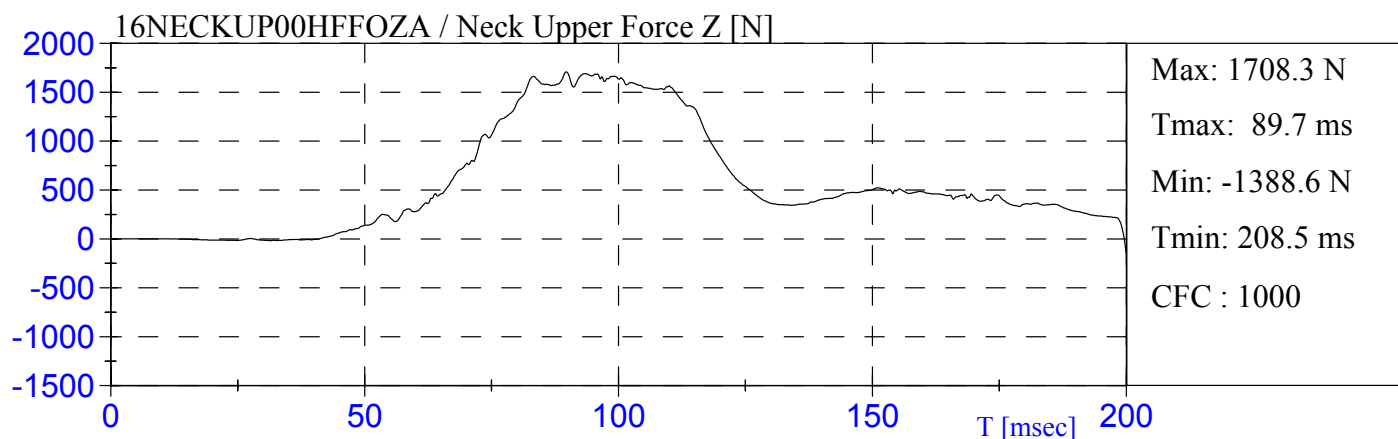
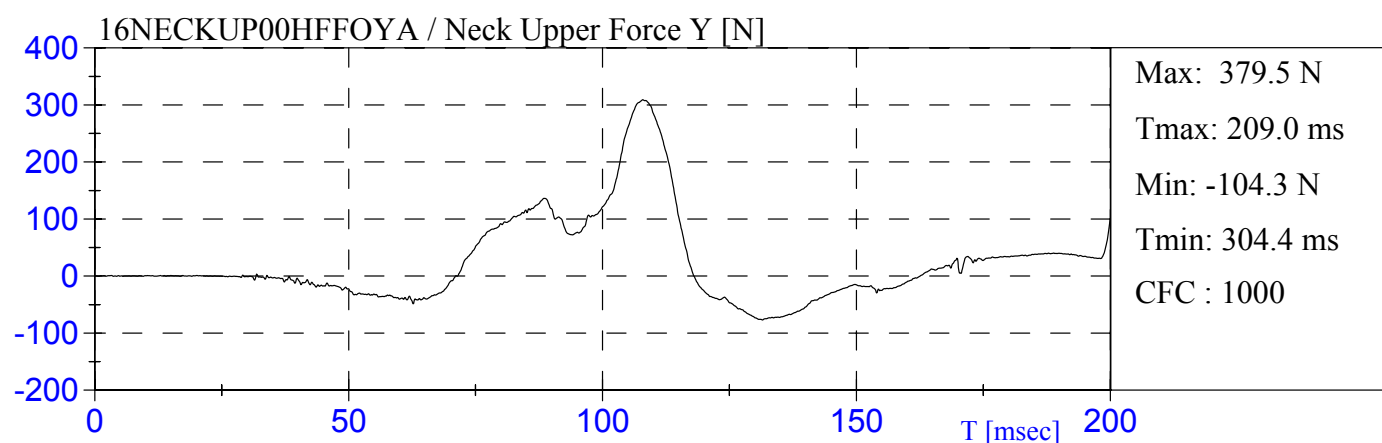
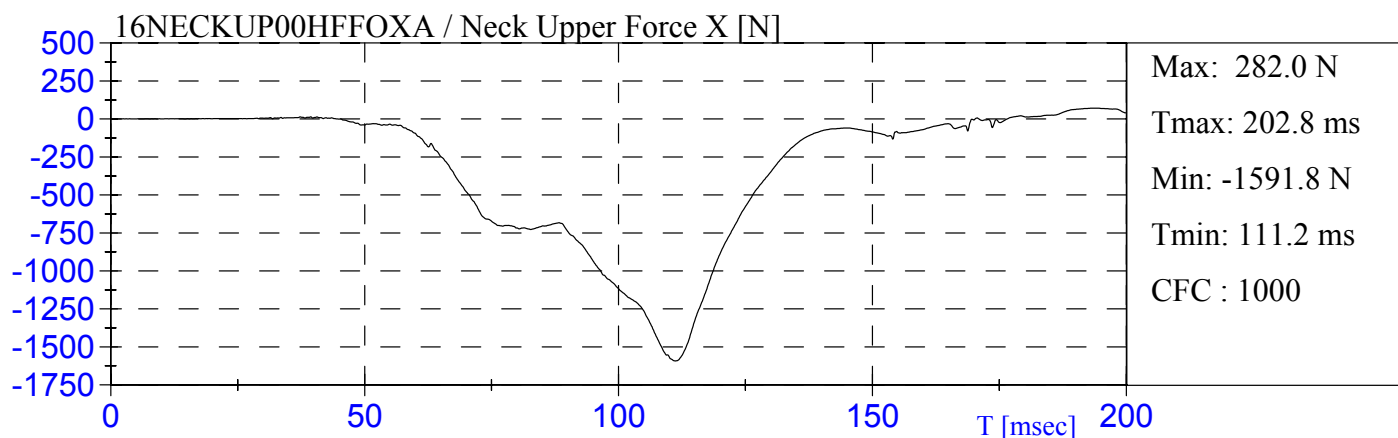


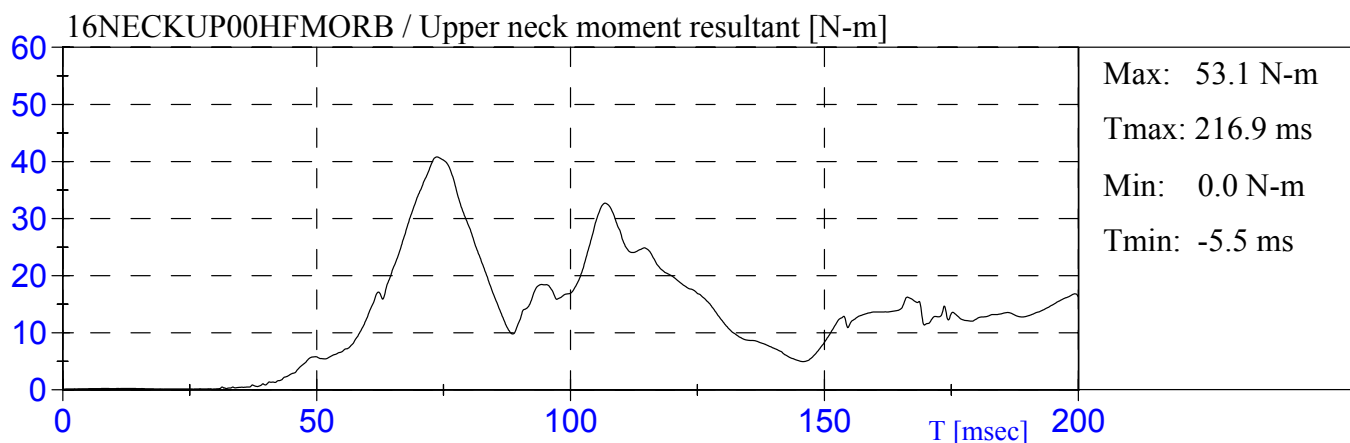
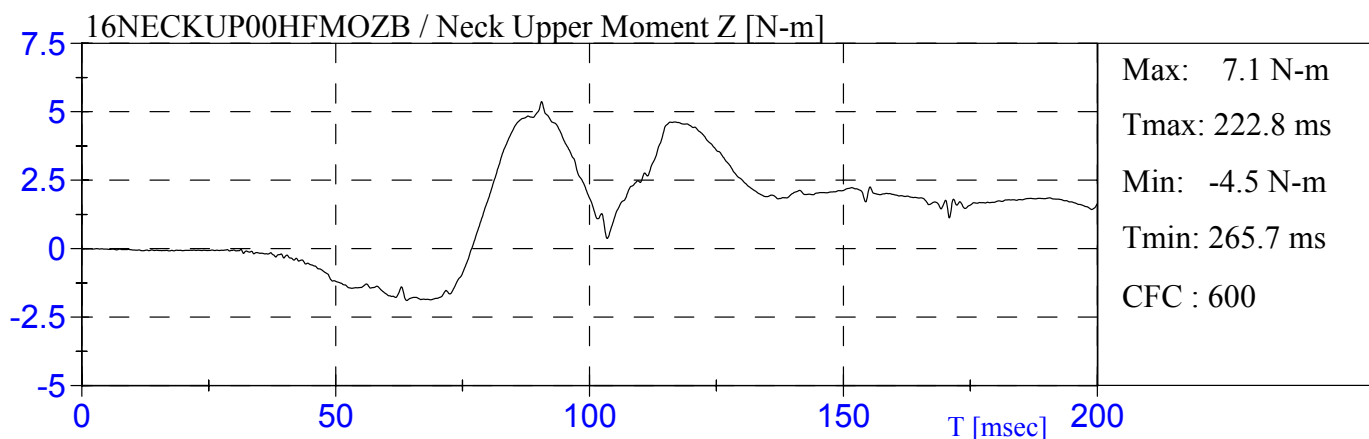
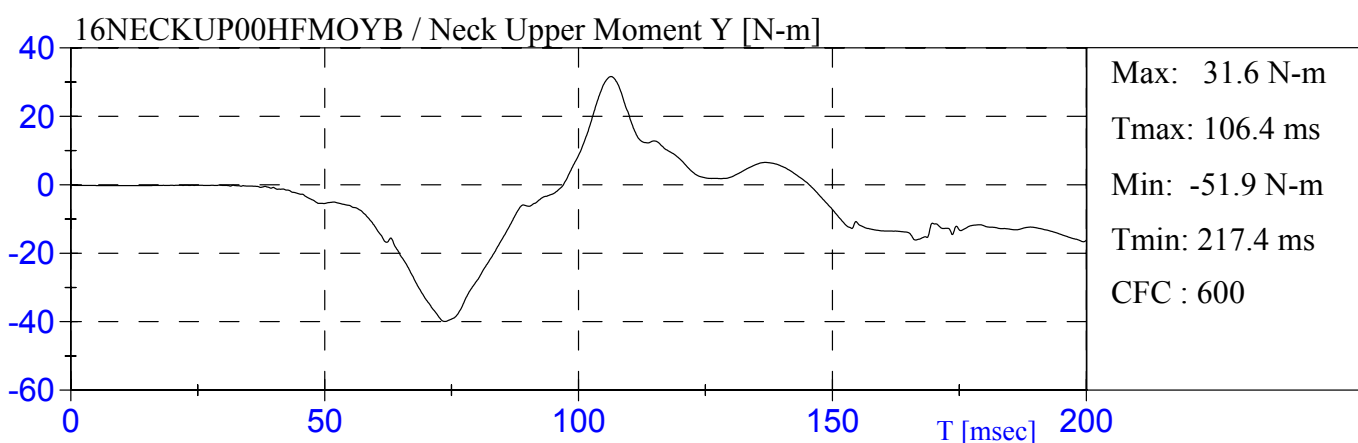
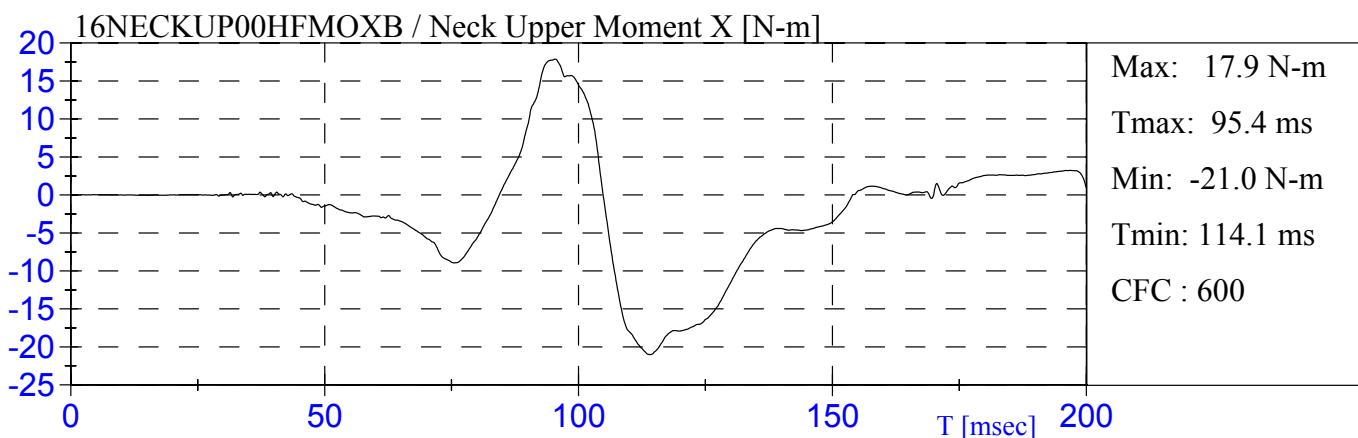


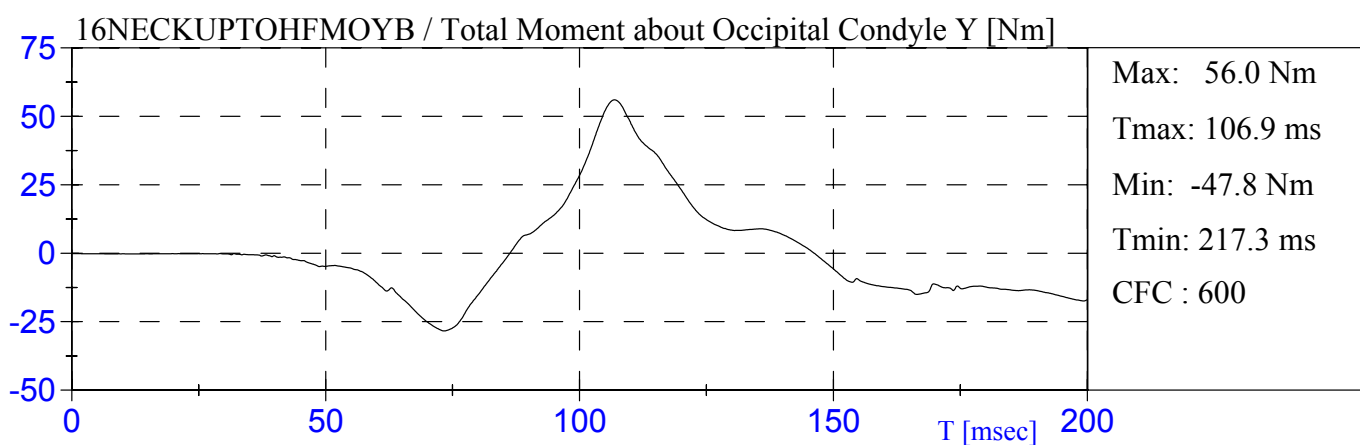
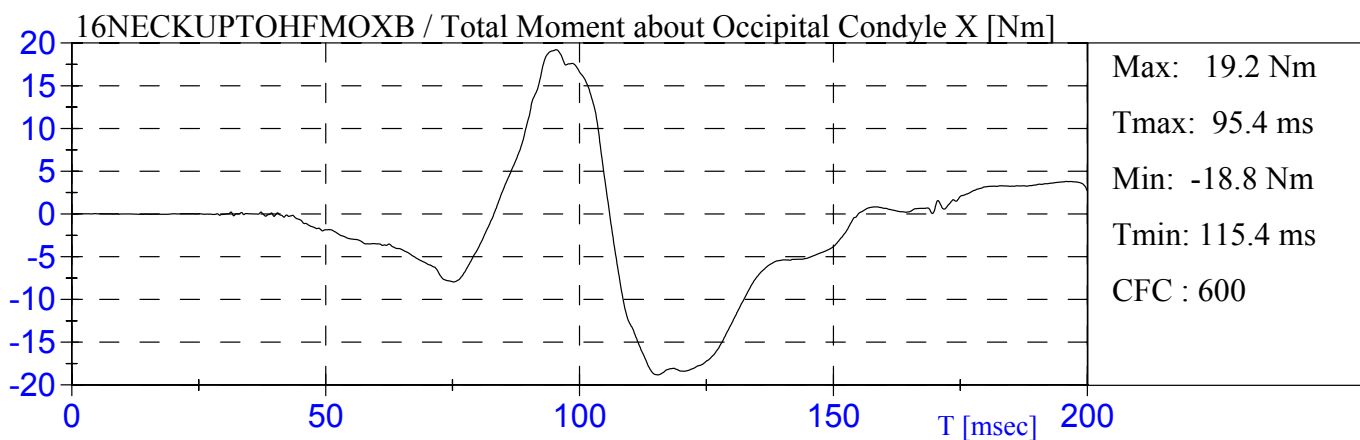


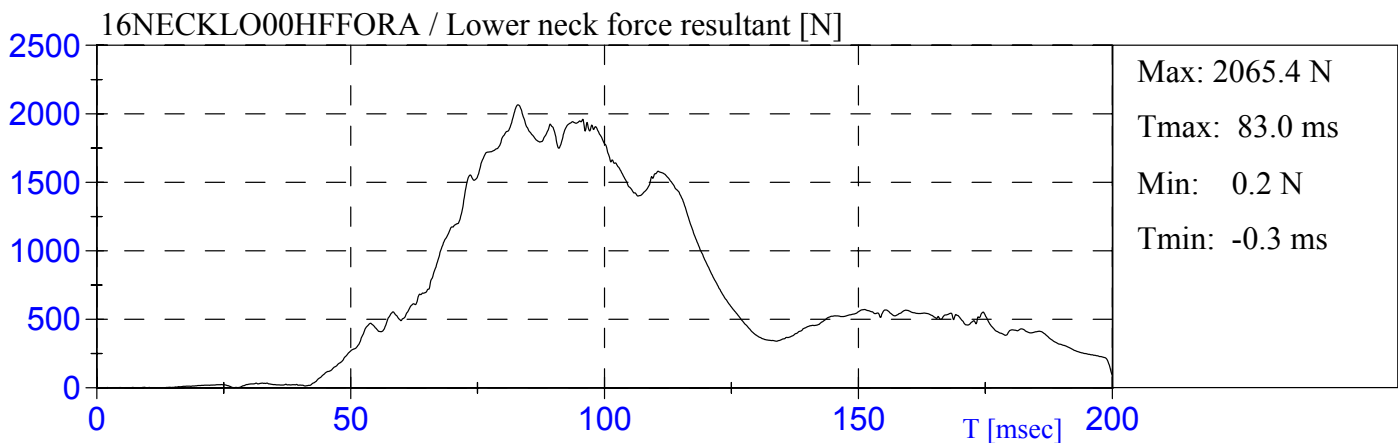
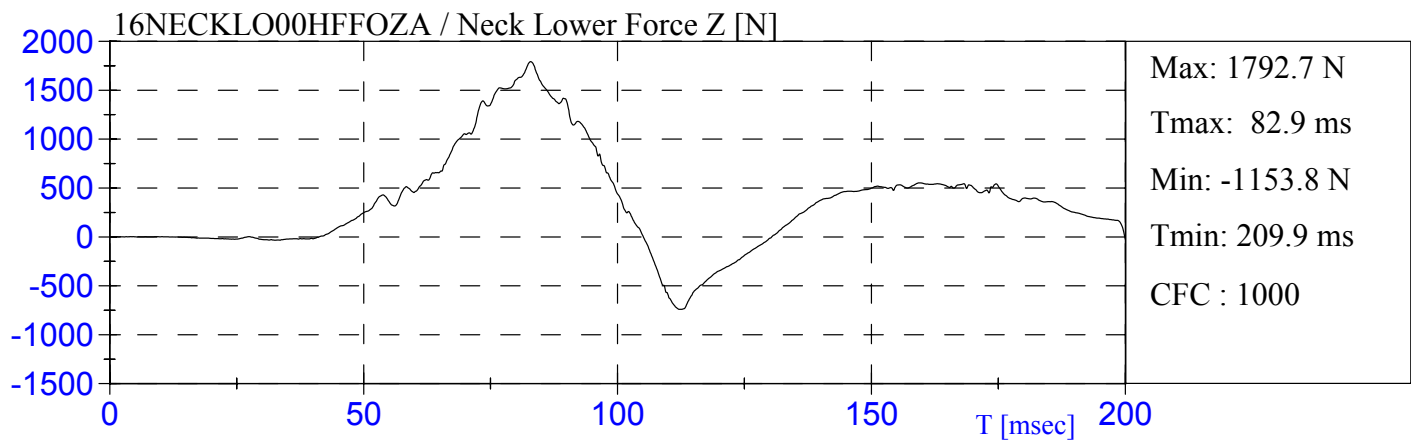
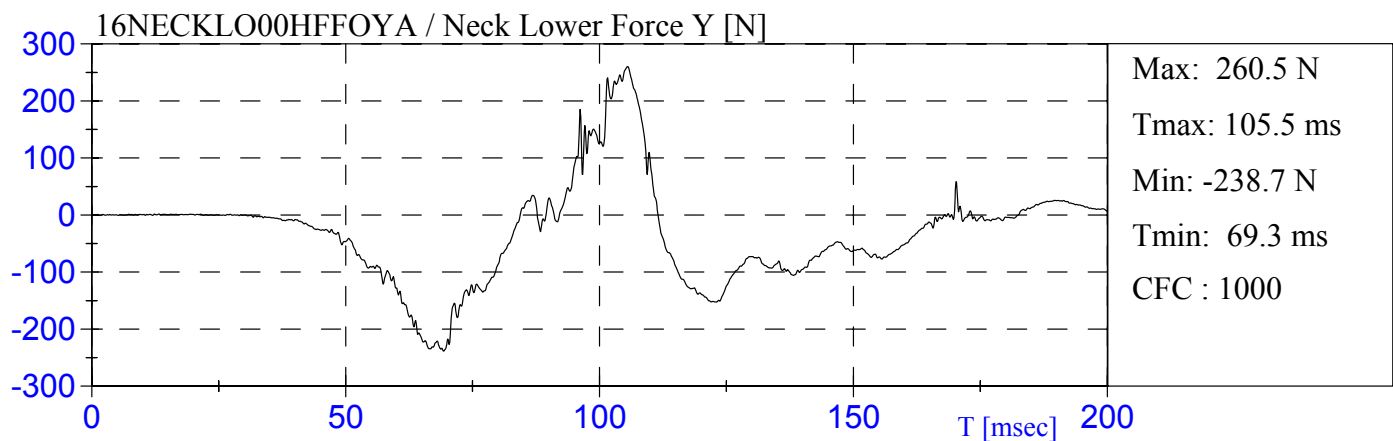
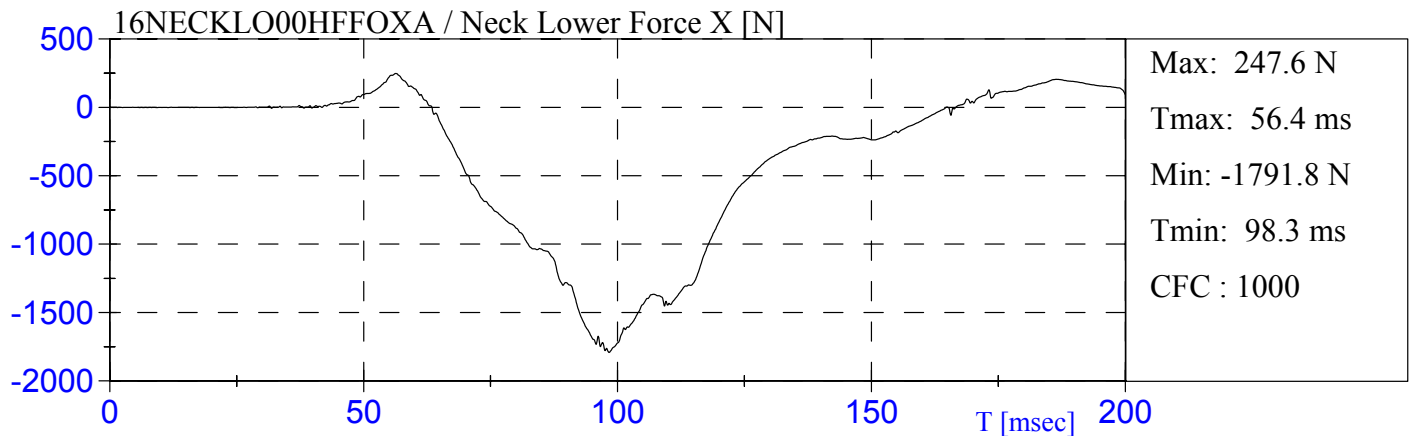


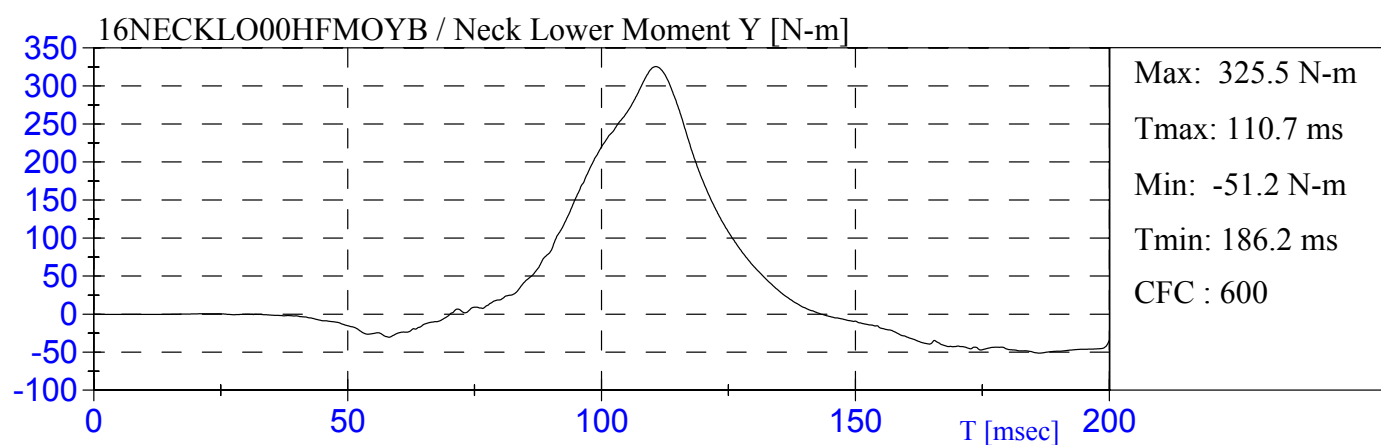
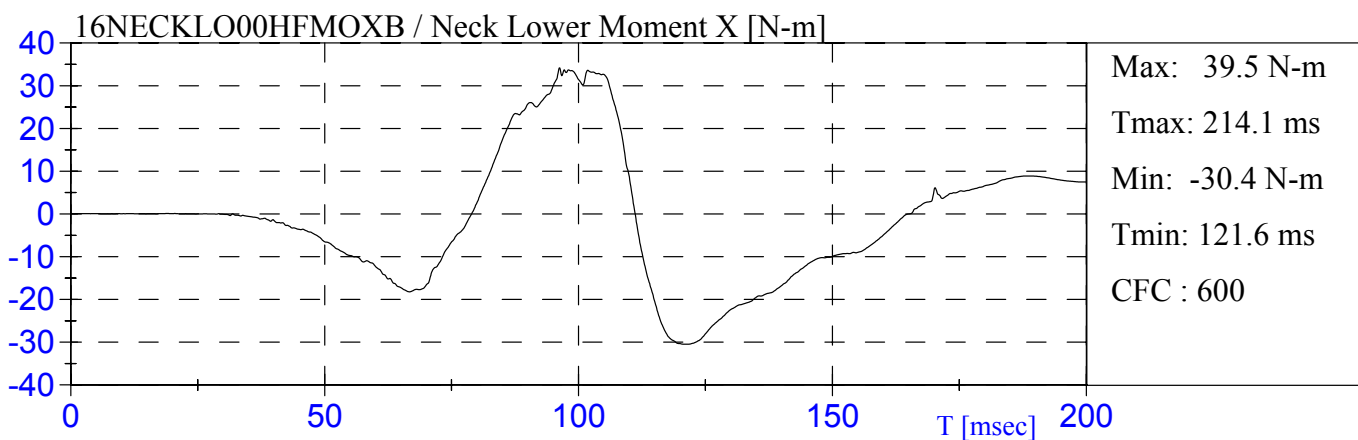


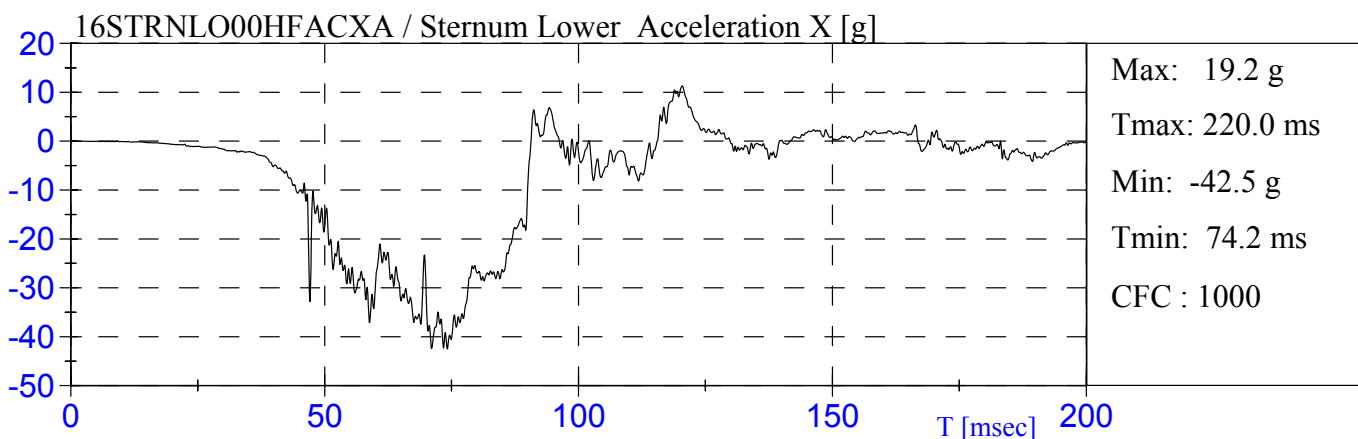
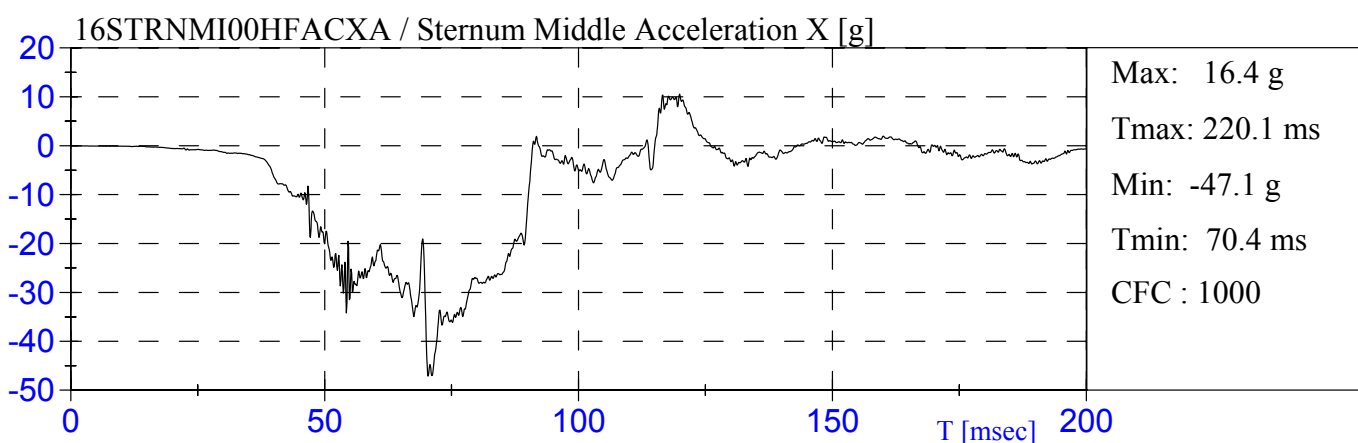
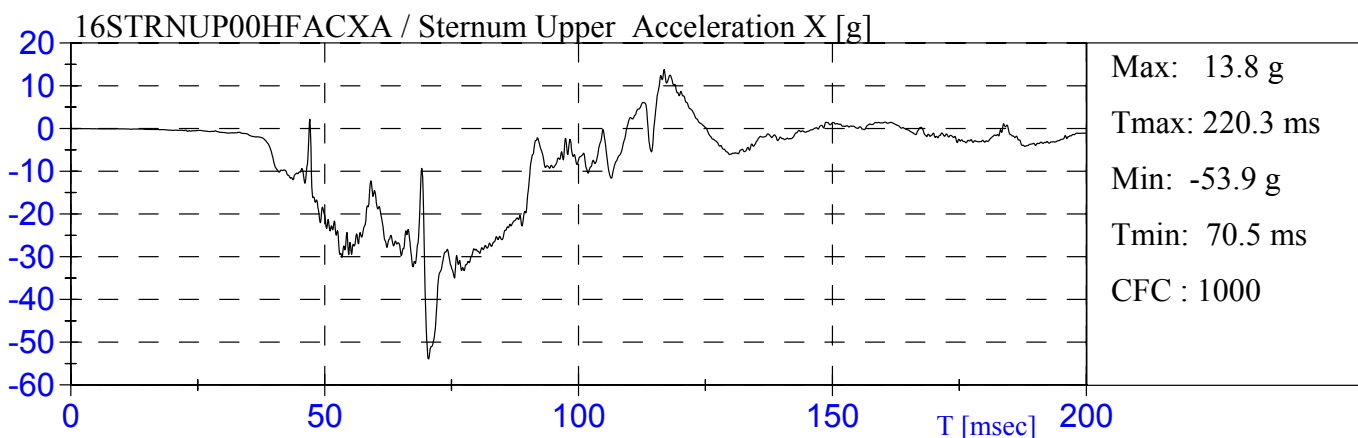


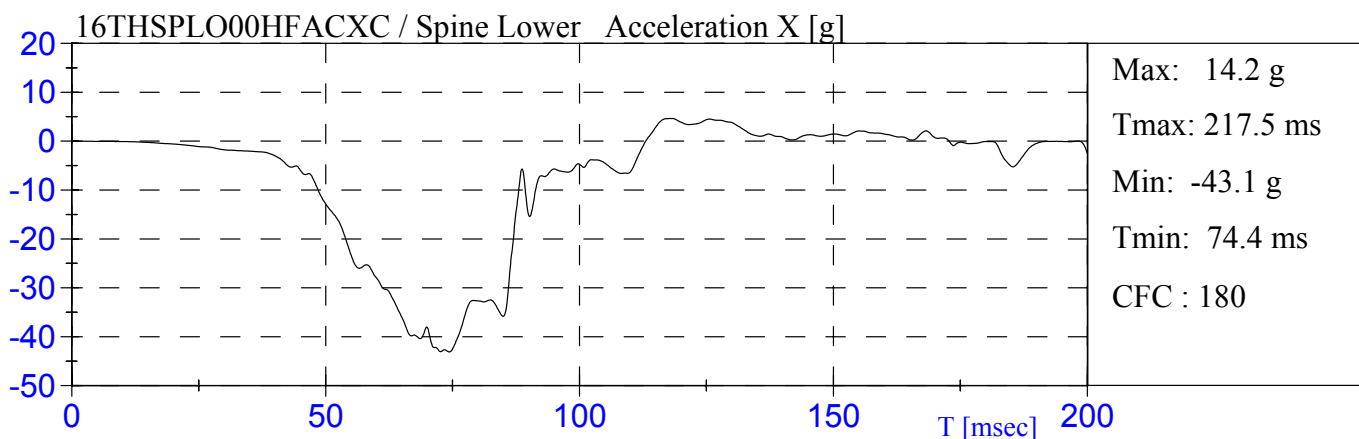
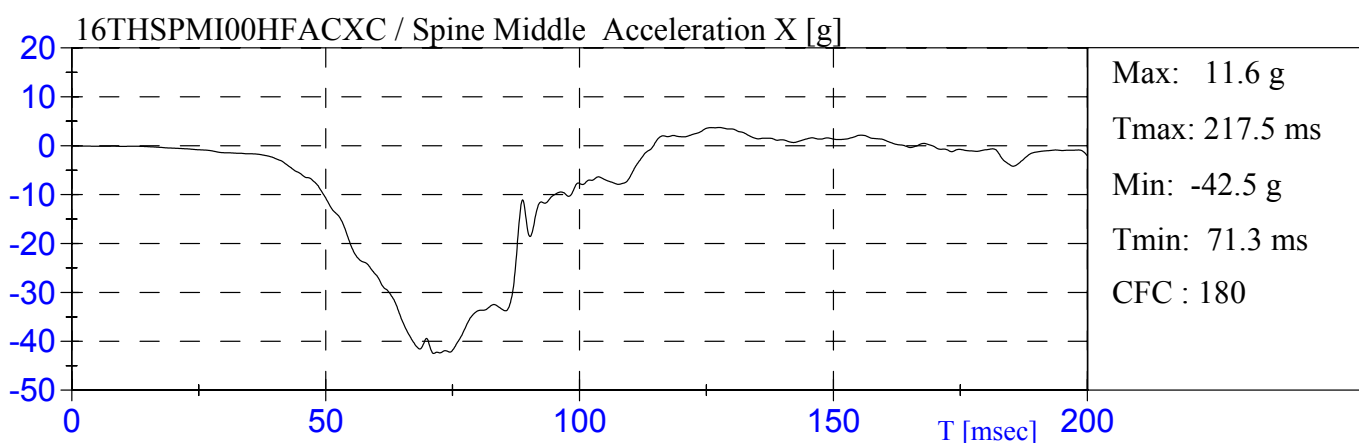
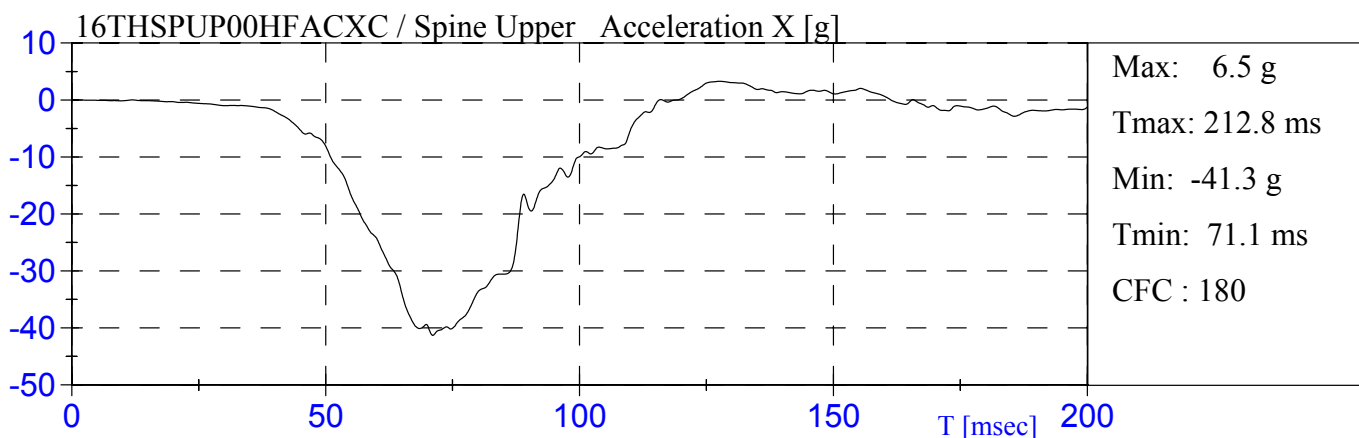


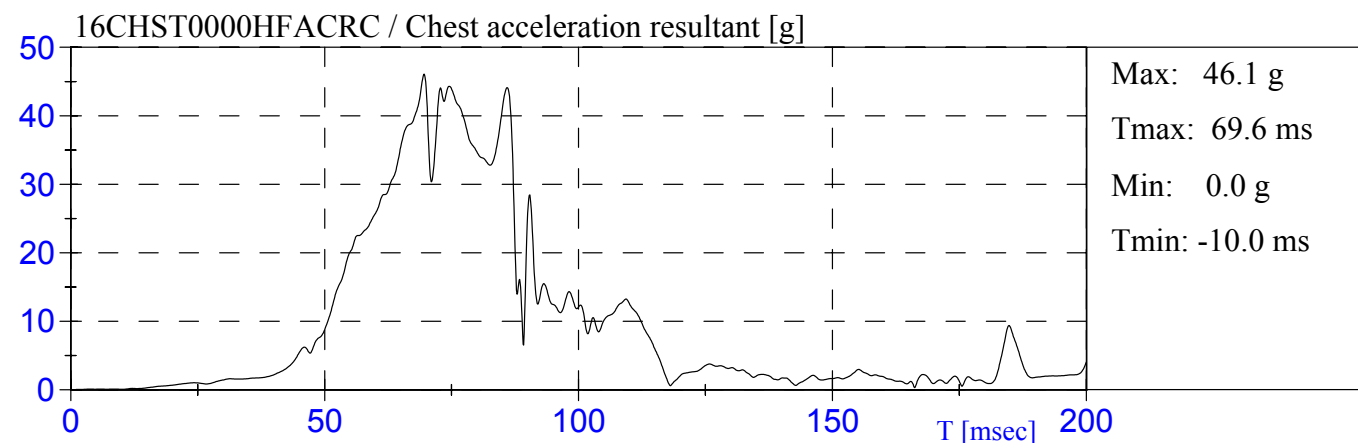
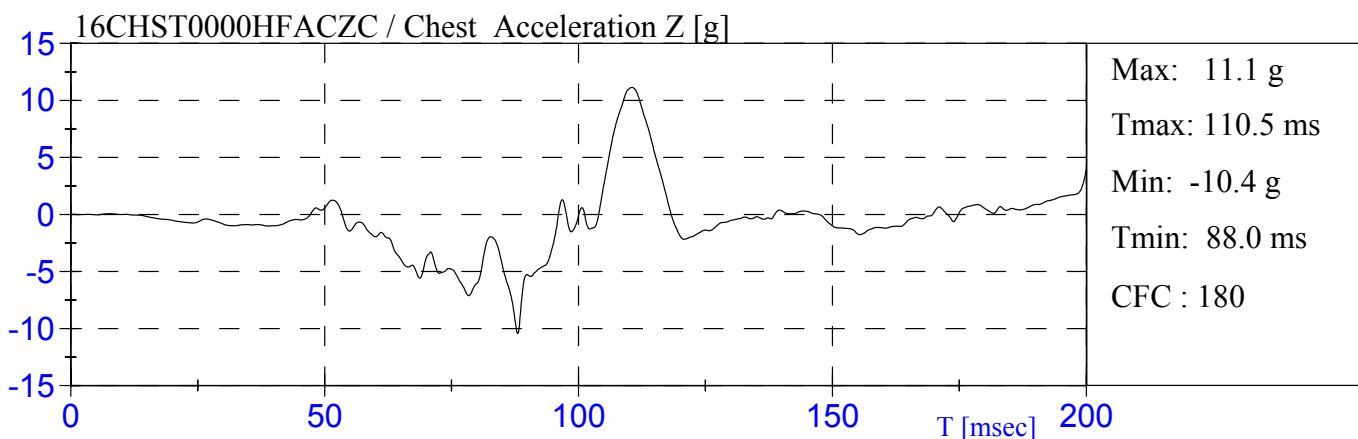
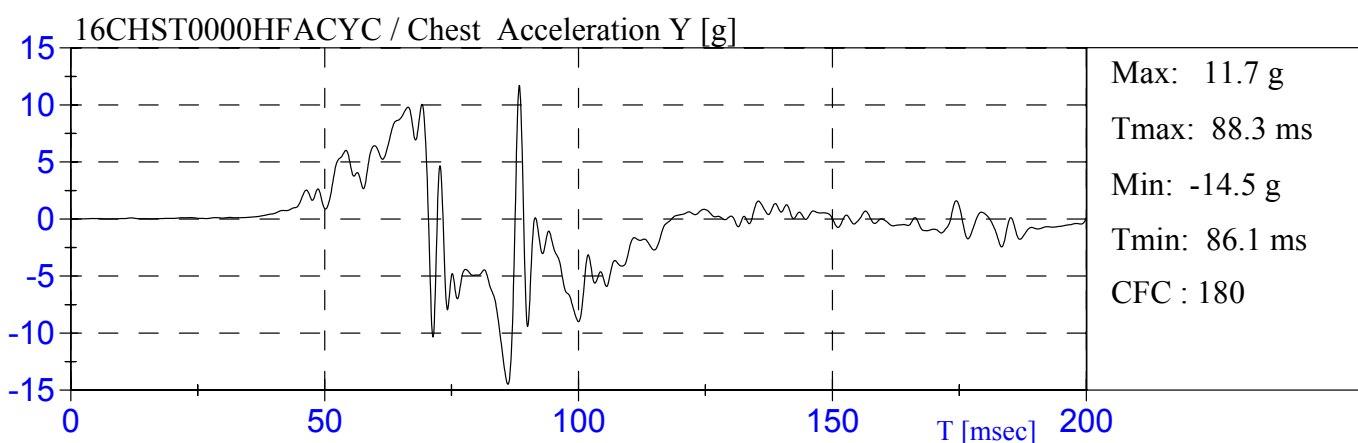
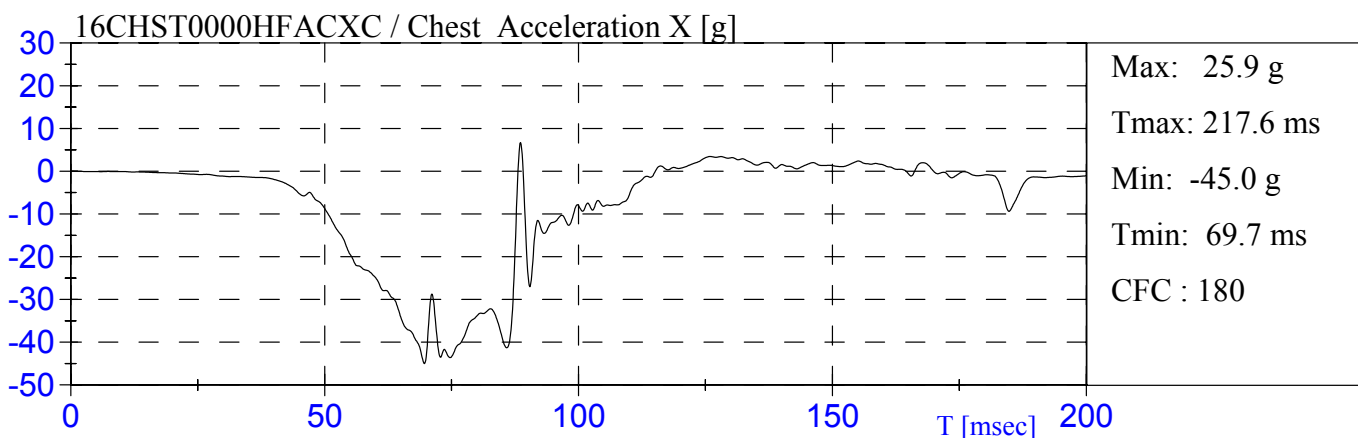


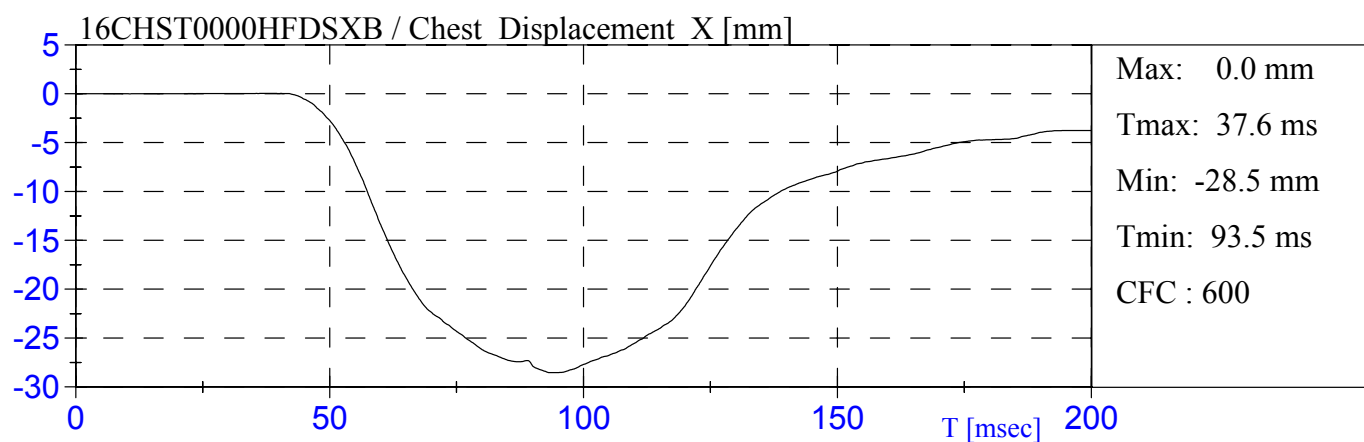


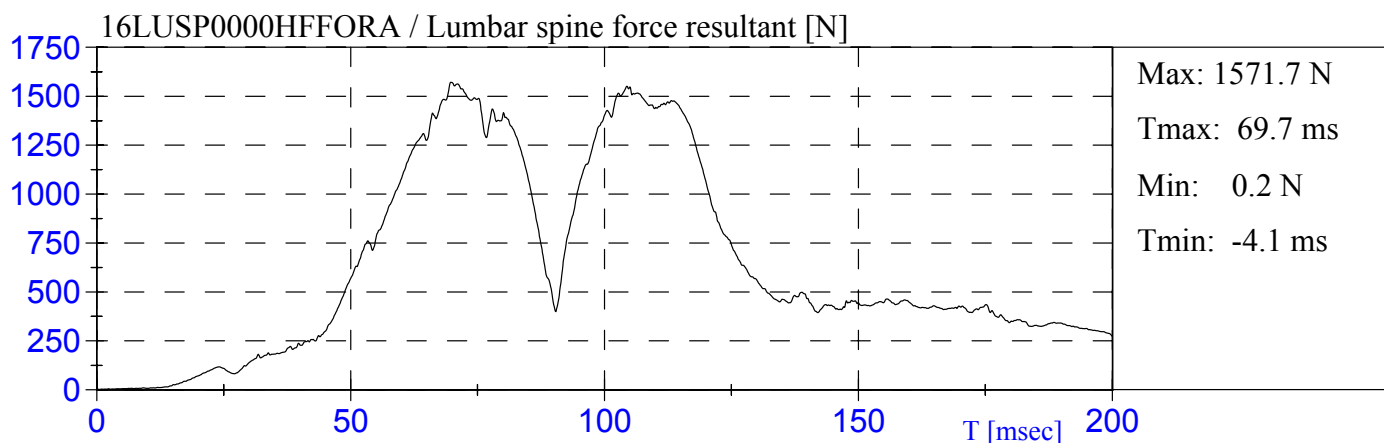
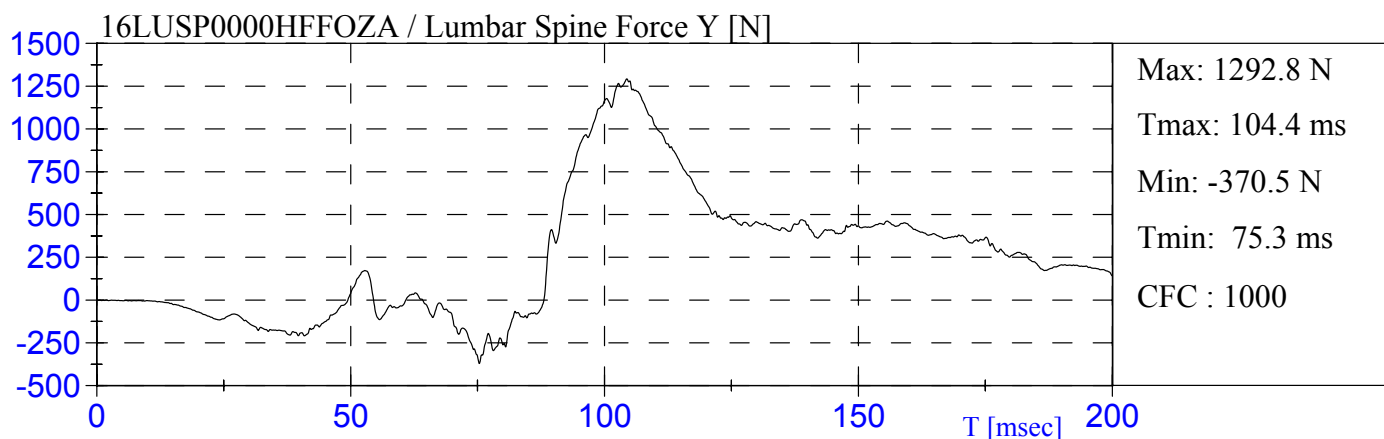
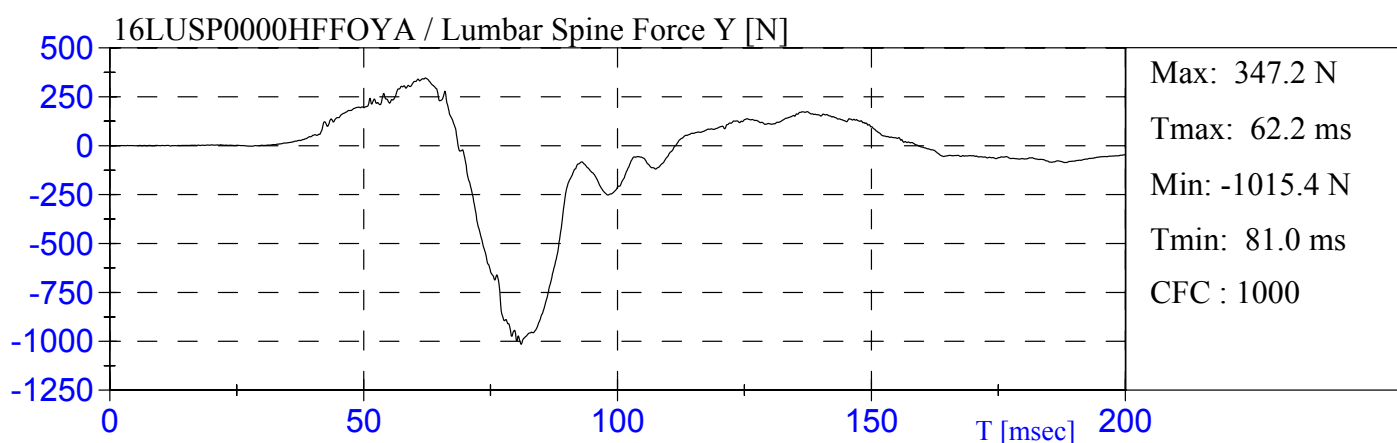
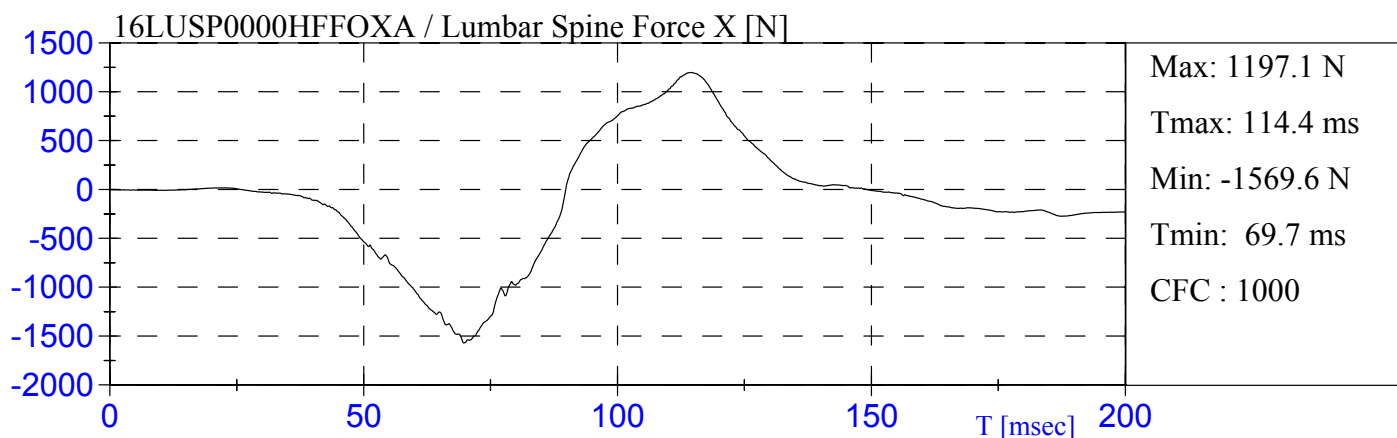


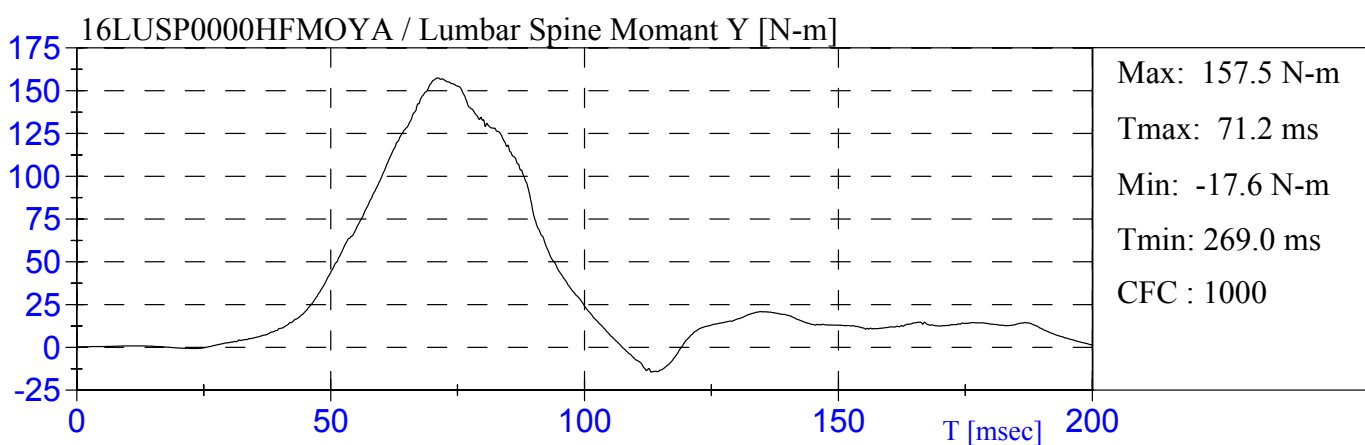
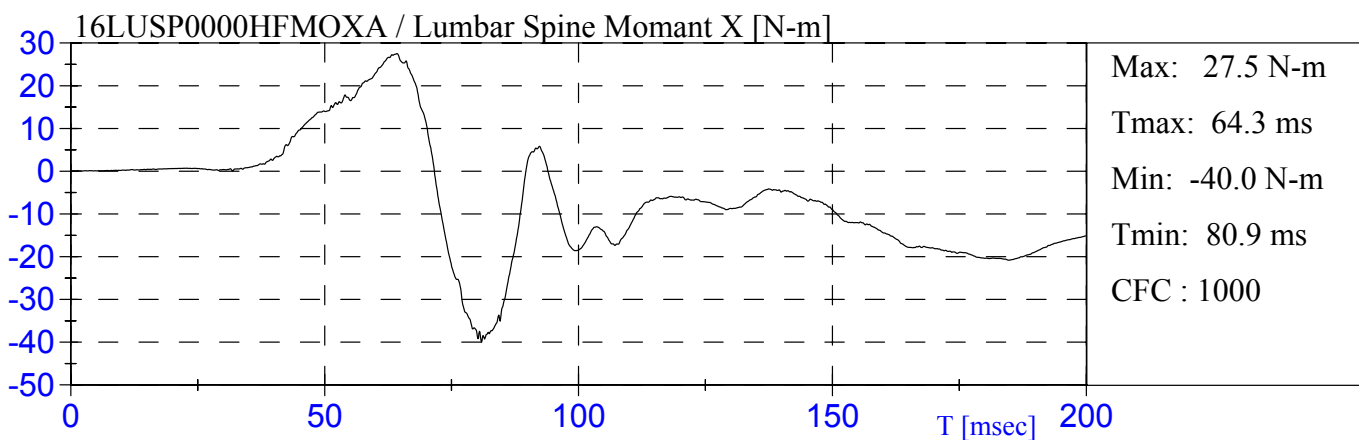


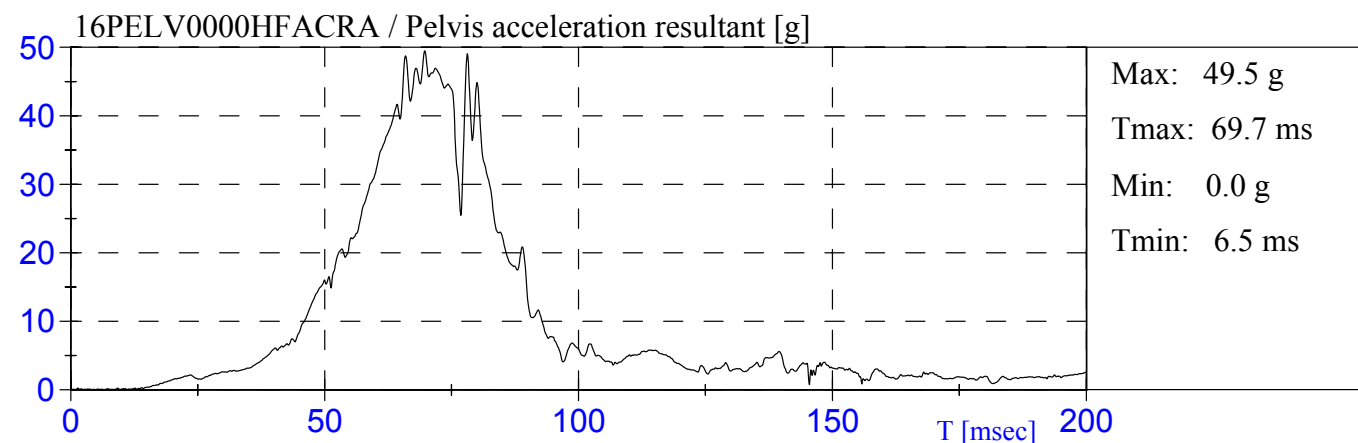
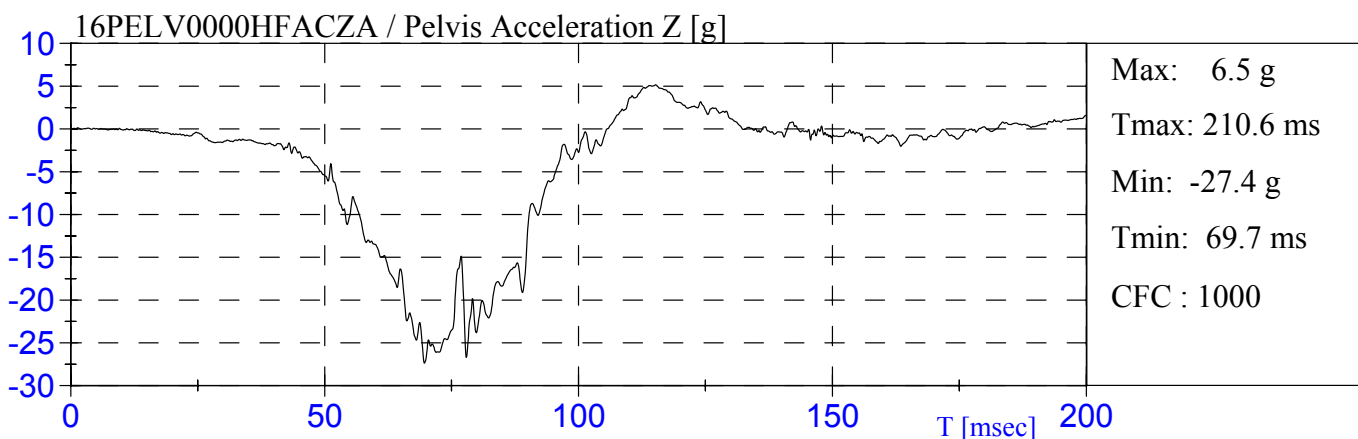
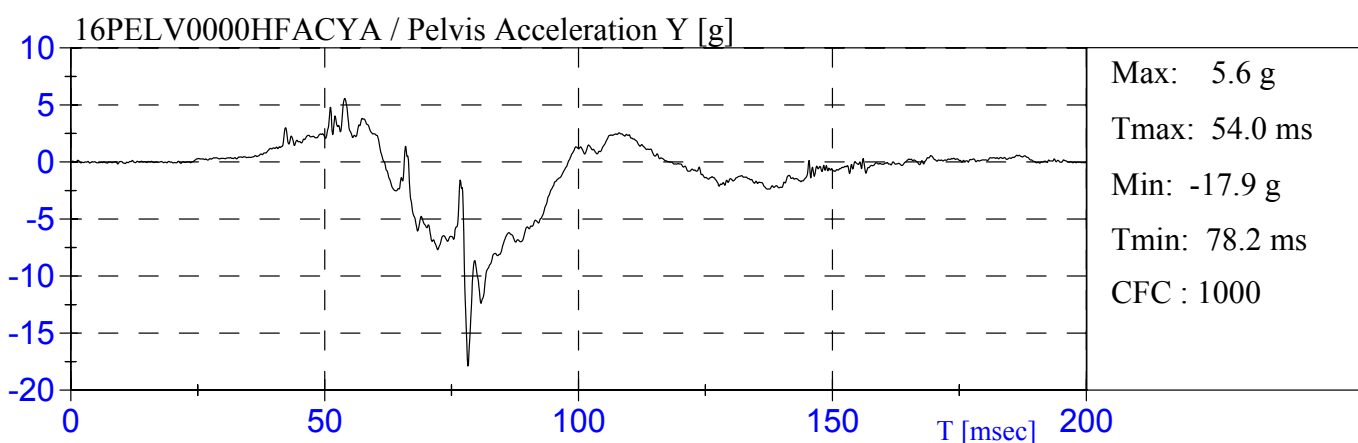
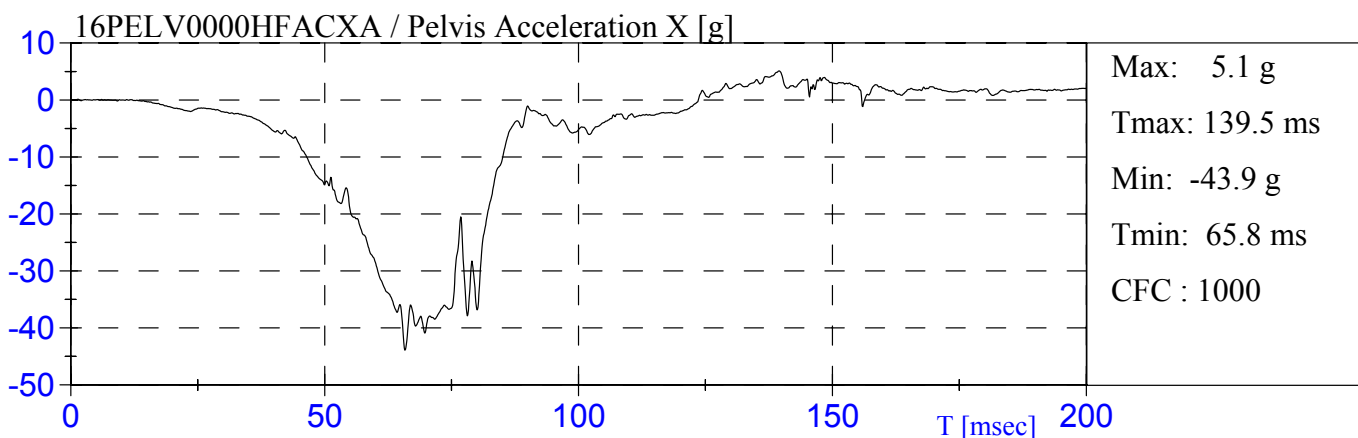


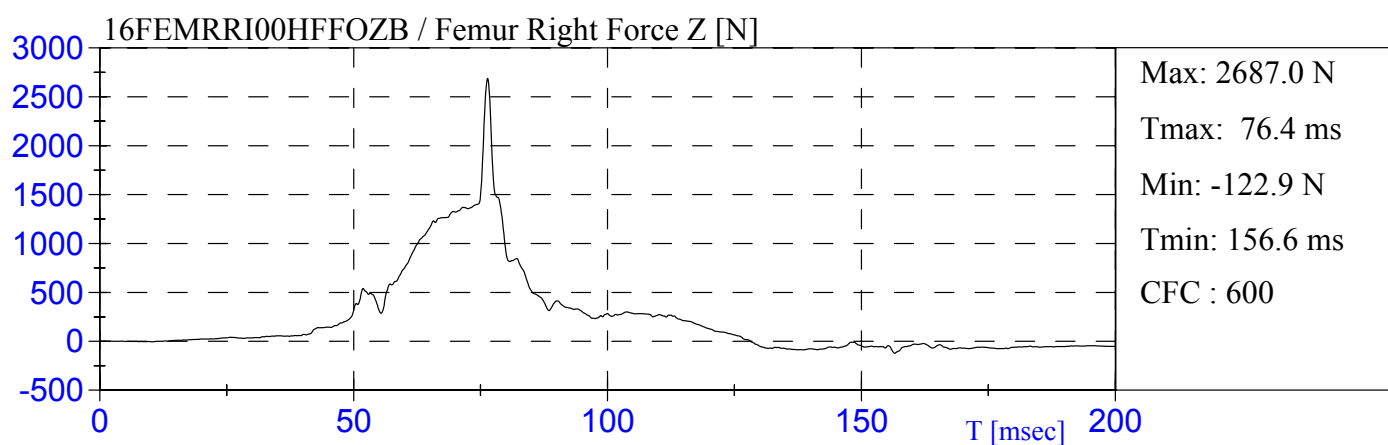
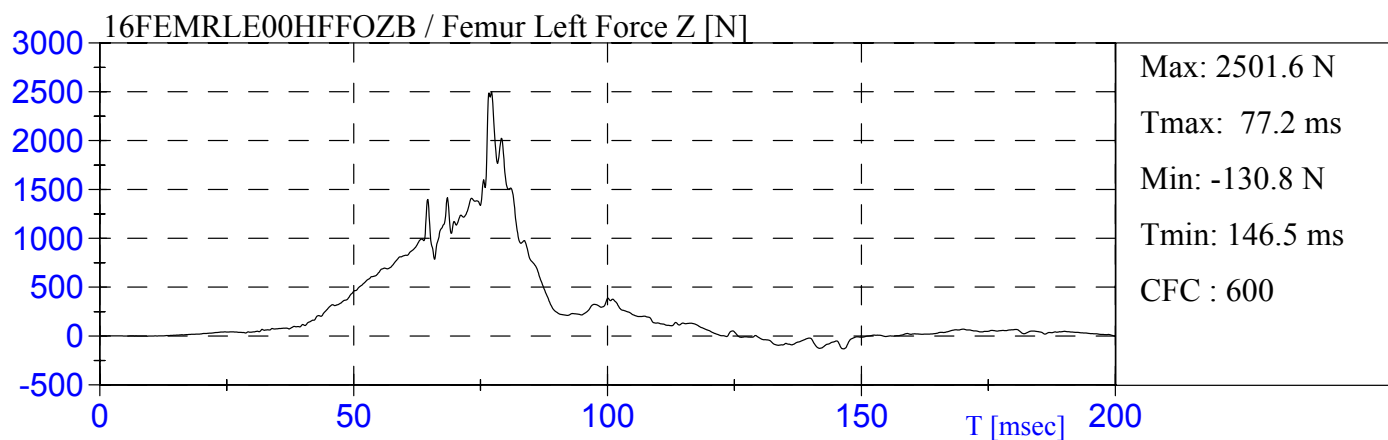


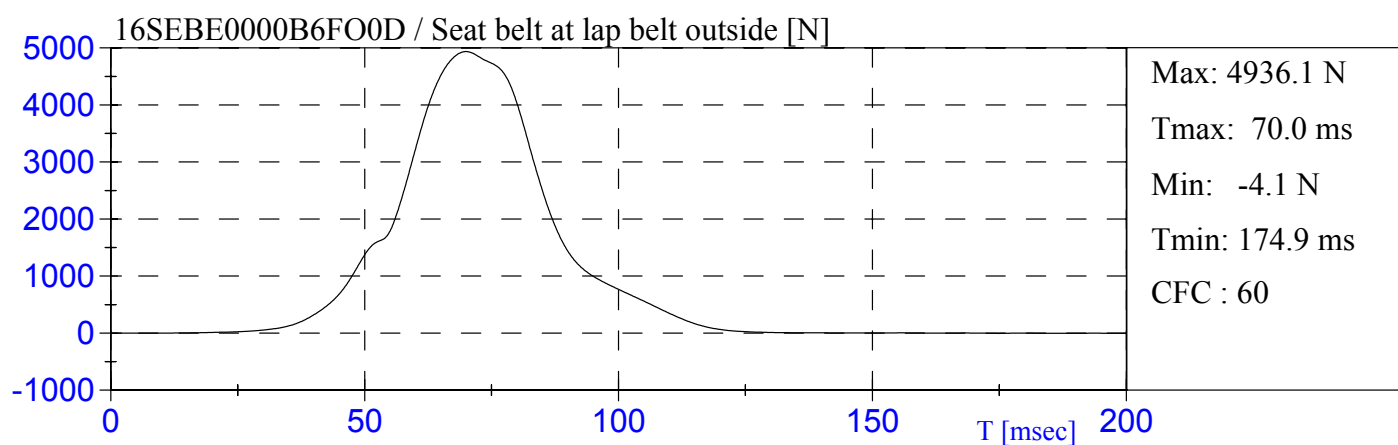
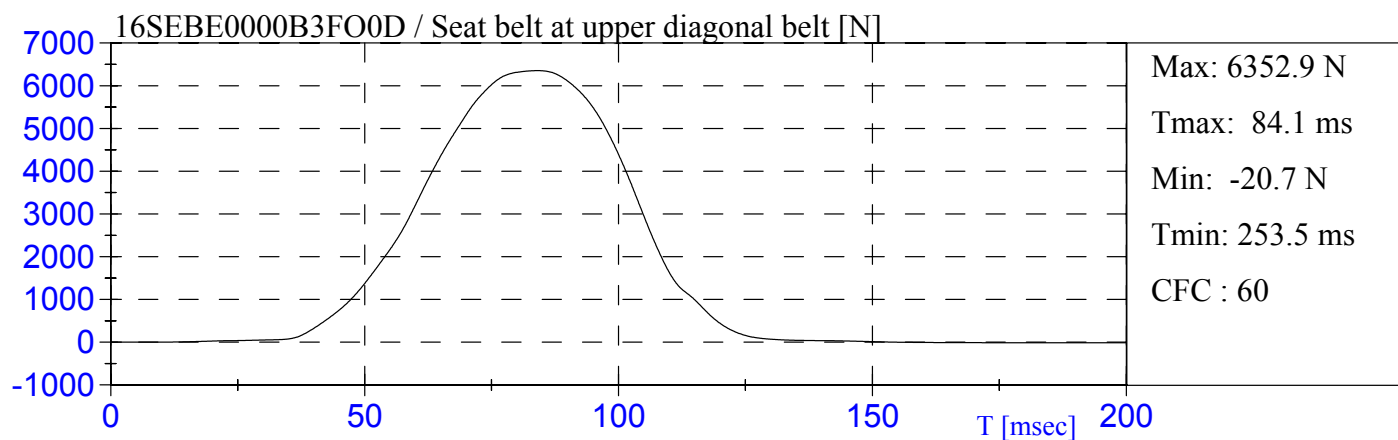


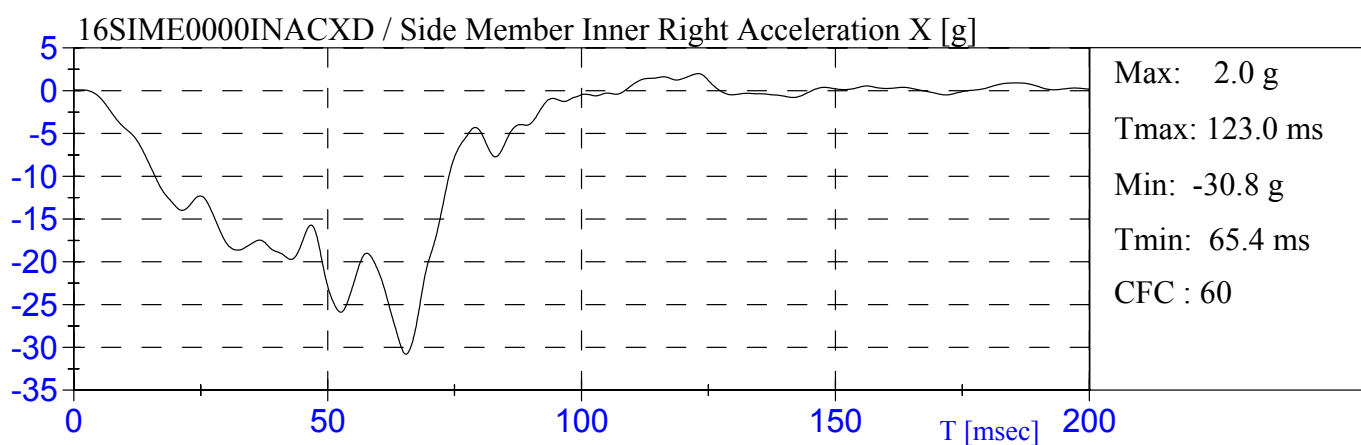
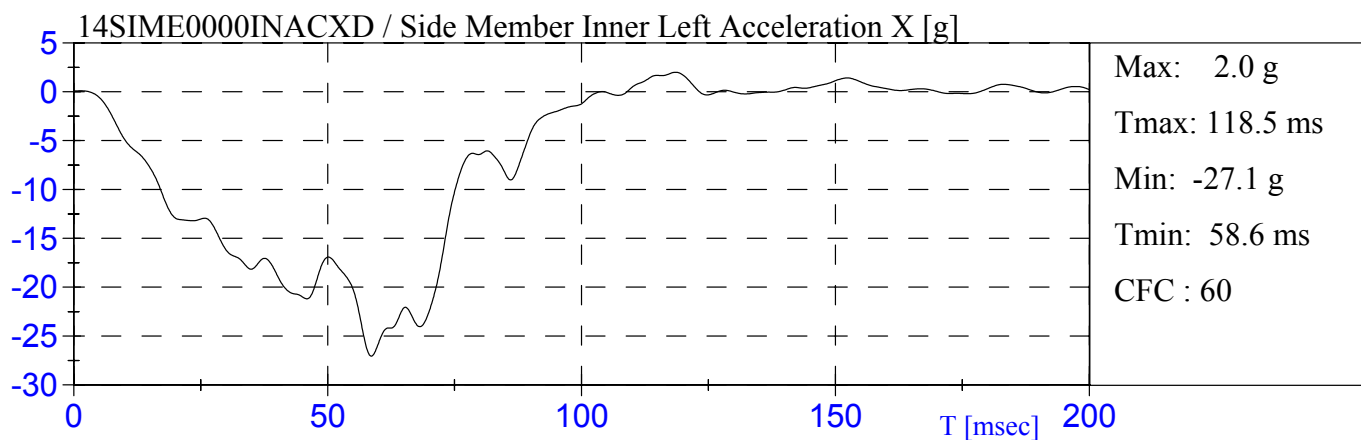


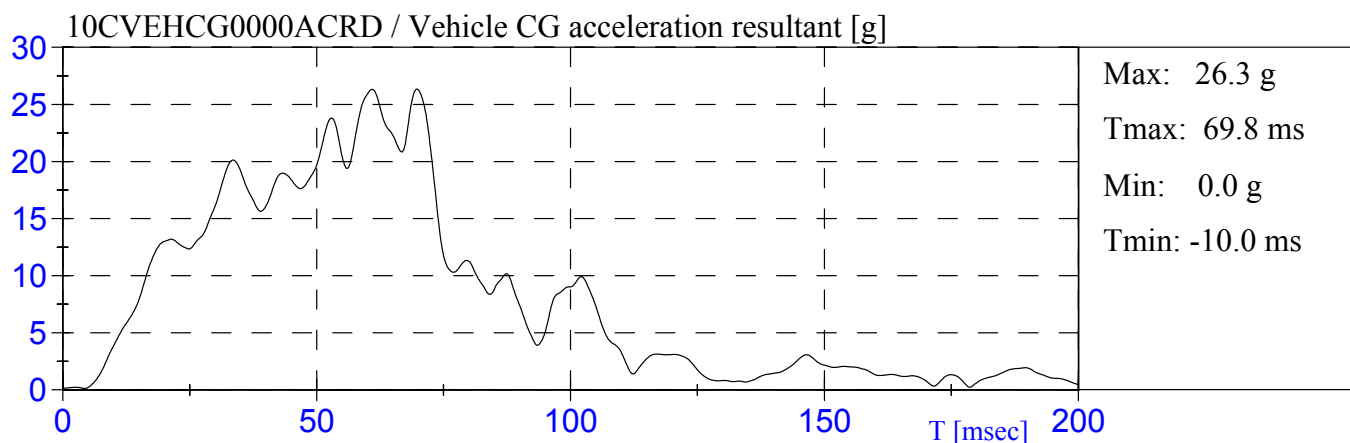
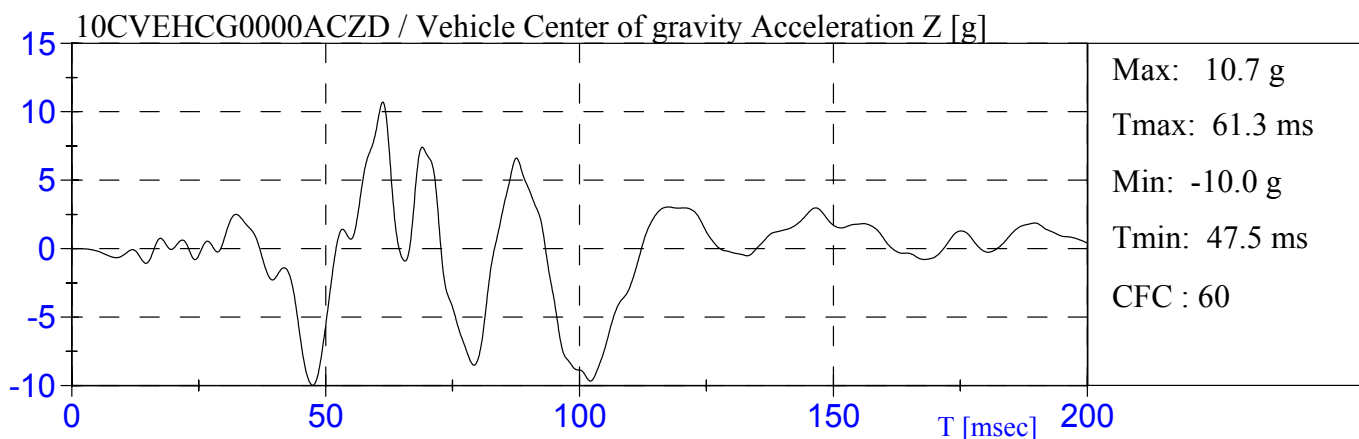
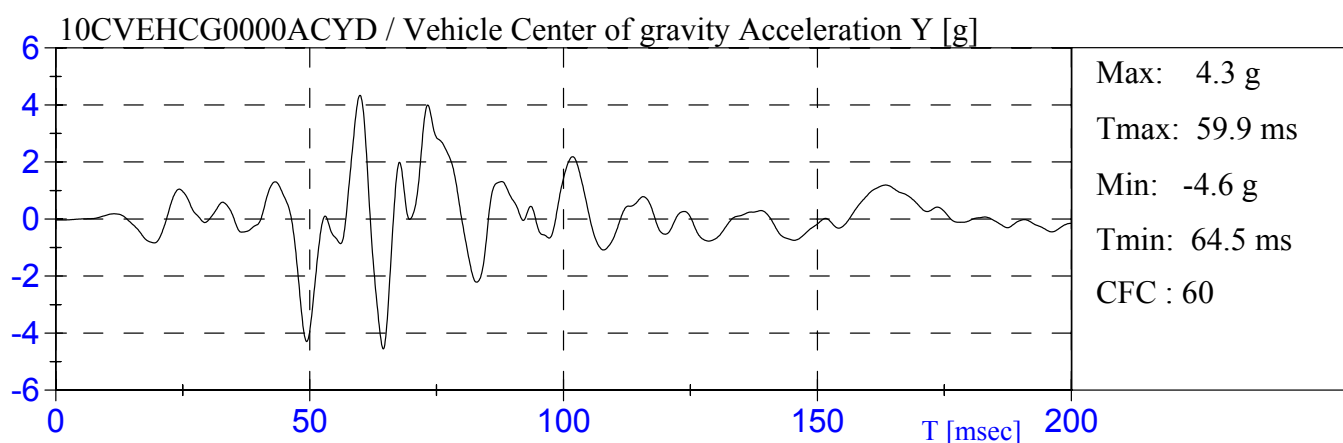
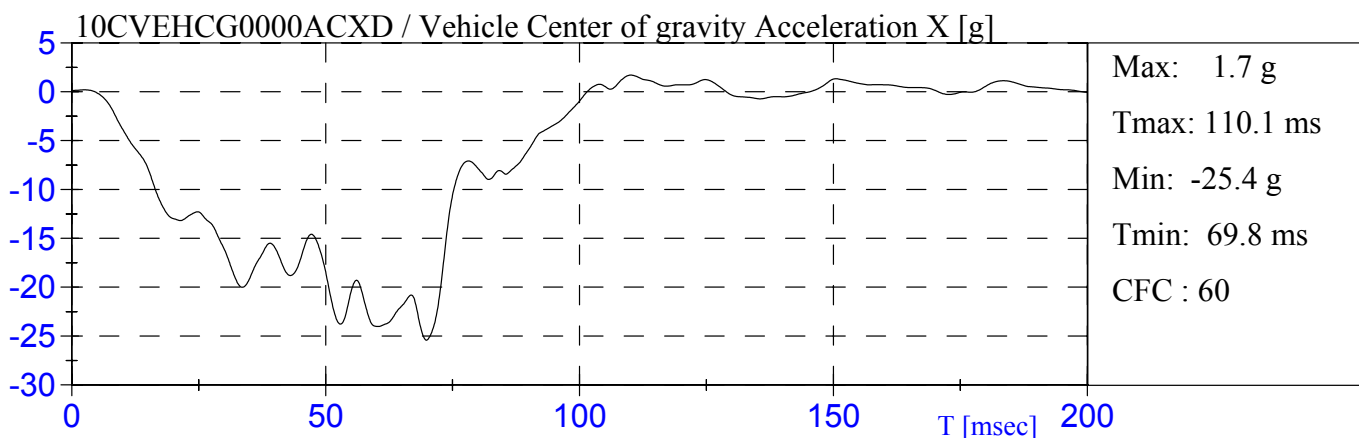


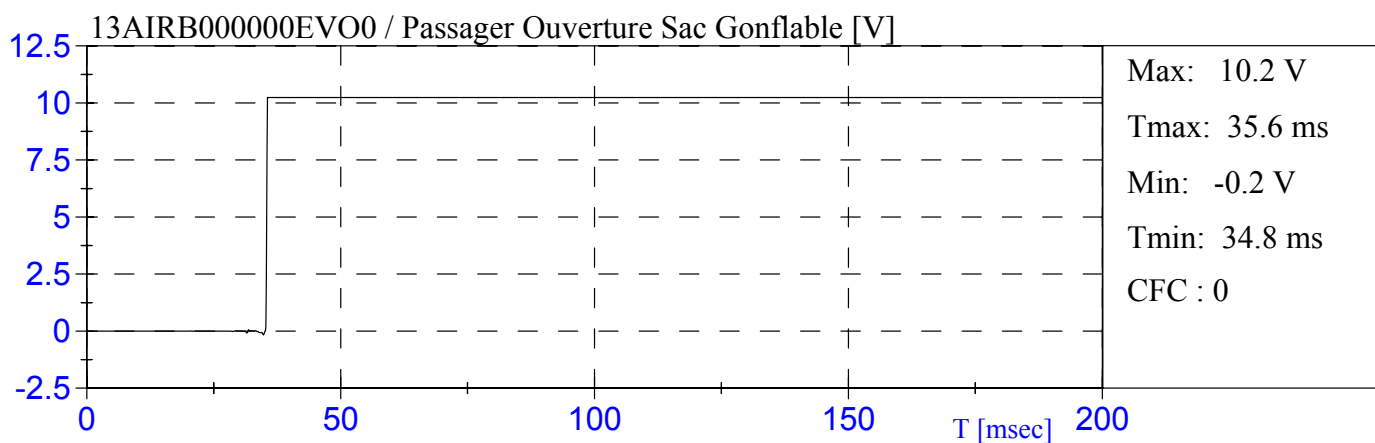
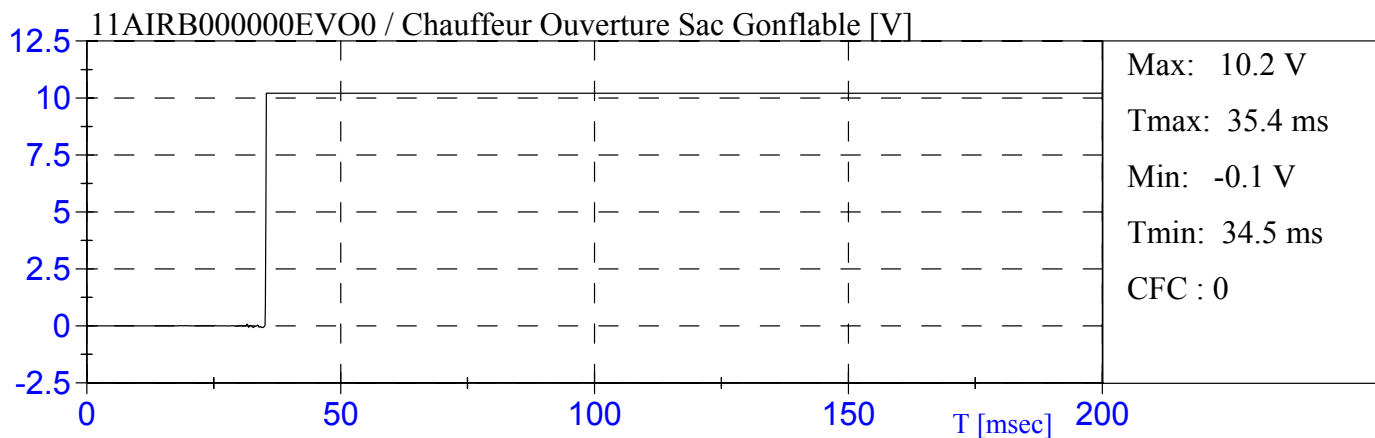


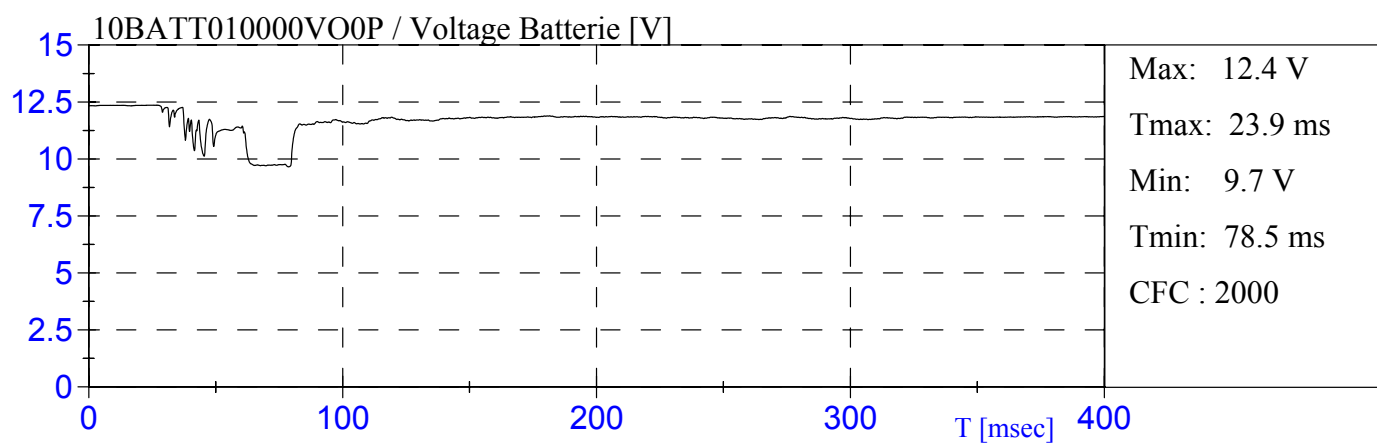


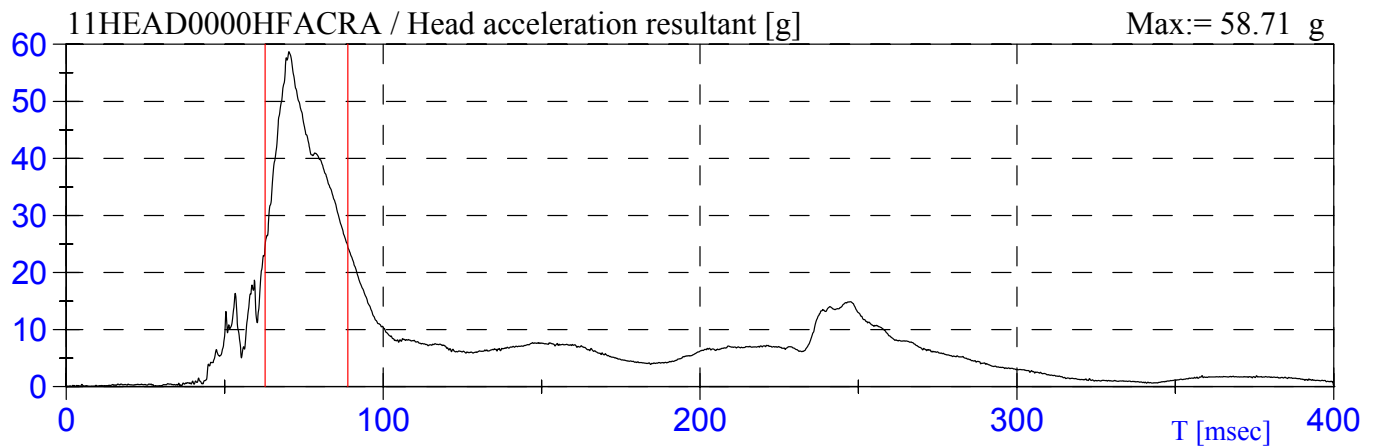










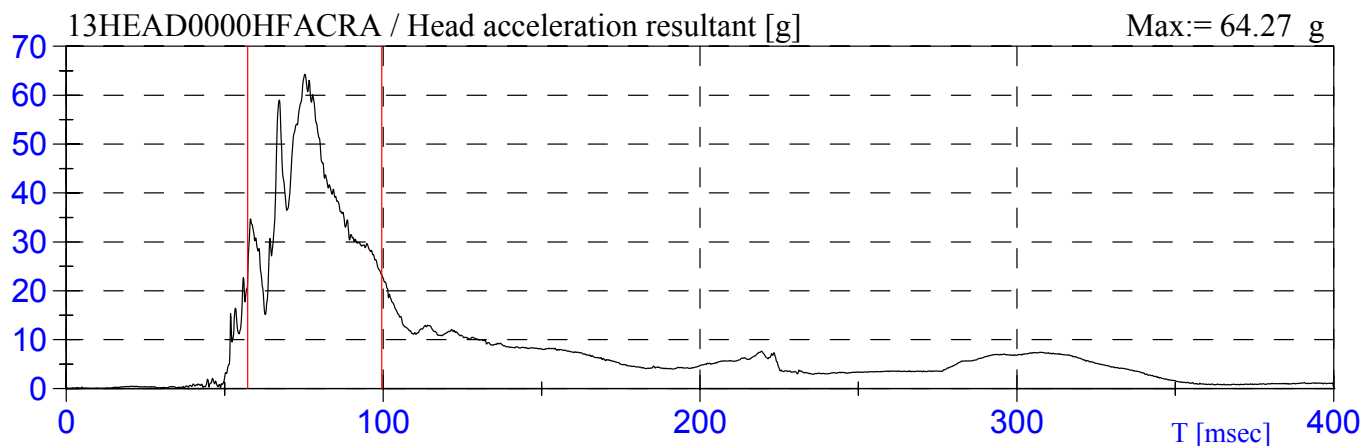


HEAD INJURY CRITERIA (HIC) *

CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 278	HIC(36ms):= 278	HIC(15ms):= 234
T1:= 62.8 ms	T1:= 62.8 ms	T1:= 65.6 ms
T2:= 88.9 ms	T2:= 88.9 ms	T2:= 80.6 ms

* Selon / According To: SAE J1727 96-08

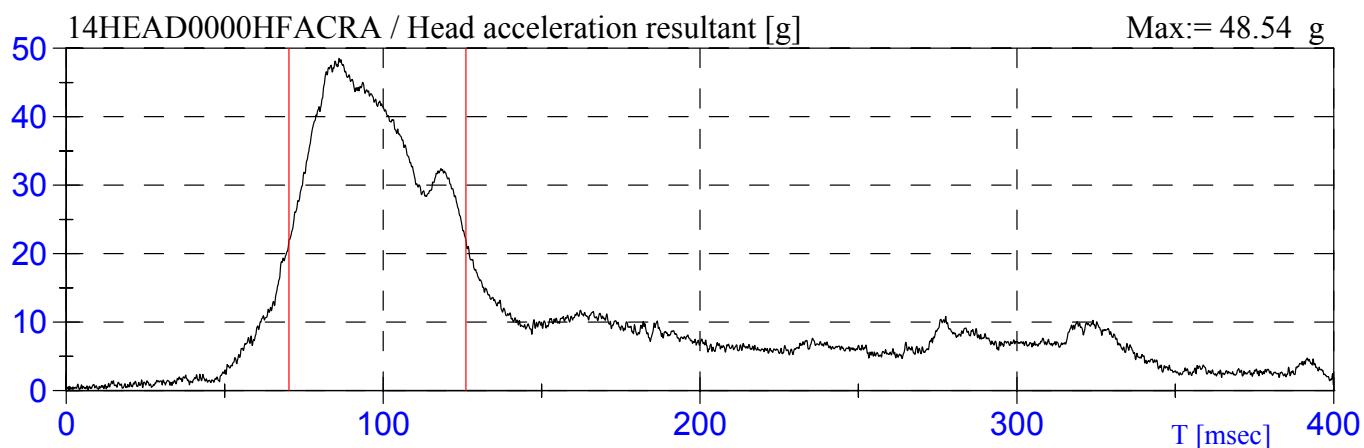


HEAD INJURY CRITERIA (HIC) *

CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 393	HIC(36ms):= 386	HIC(15ms):= 302
T1:= 57.3 ms	T1:= 63.9 ms	T1:= 66.2 ms
T2:= 99.6 ms	T2:= 98.2 ms	T2:= 81.2 ms

* Selon / According To: SAE J1727 96-08

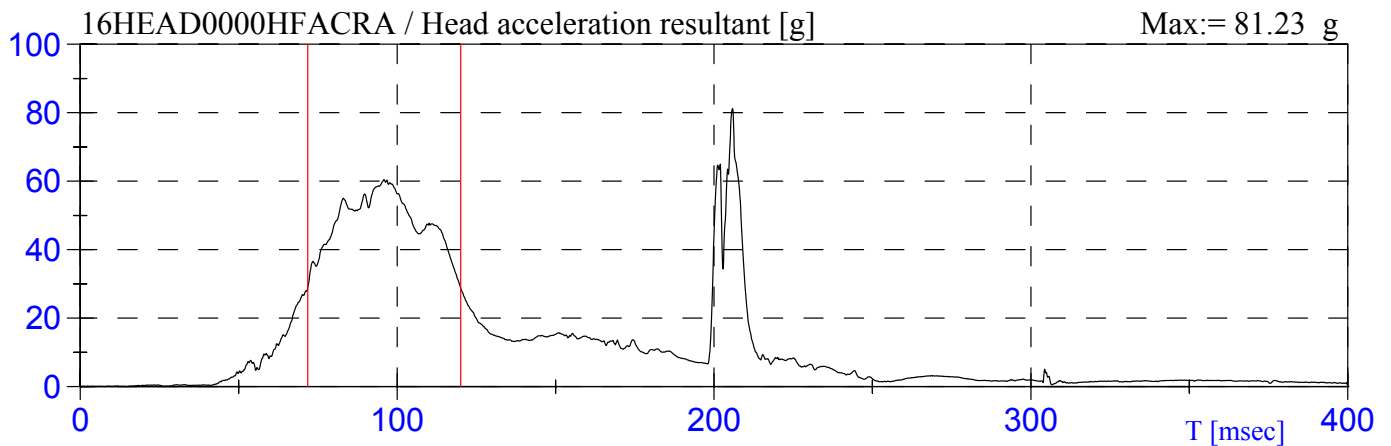


HEAD INJURY CRITERIA (HIC) *

CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 455	HIC(36ms):= 392	HIC(15ms):= 212
T1:= 70.3 ms	T1:= 74.6 ms	T1:= 81.0 ms
T2:= 126.1 ms	T2:= 110.6 ms	T2:= 96.0 ms

* Selon / According To: SAE J1727 96-08



HEAD INJURY CRITERIA (HIC) *
CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 775	HIC(36ms):= 697	HIC(15ms):= 361
T1:= 71.8 ms	T1:= 78.8 ms	T1:= 87.9 ms
T2:= 120.1 ms	T2:= 114.8 ms	T2:= 102.9 ms

* Selon / According To: SAE J1727 96-08

Neck Injury Criteria: 11NIJCIP000000YX

$N_{ij}^* = 0.88$

Valeurs critiques
Criticals Values

N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
0.19	0.88	0.17	0.41	Fc	155
				Ec	67

* Selon / According To: Federal Register 5/2000

Neck Injury Criteria: 13NIJCIP000000YX

$N_{ij}^* = 0.23$

Valeurs critiques
Criticals Values

N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
0.00	0.07	0.21	0.23	Fc	155
				Ec	67

* Selon / According To: Federal Register 5/2000

Neck Injury Criteria: 14NIJCIP000000YX

$N_{ij}^* = 0.71$

Valeurs critiques
Criticals Values

N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
0.60	0.71	0.01	0.03	Fc	155
				Ec	67

* Selon / According To: Federal Register 5/2000

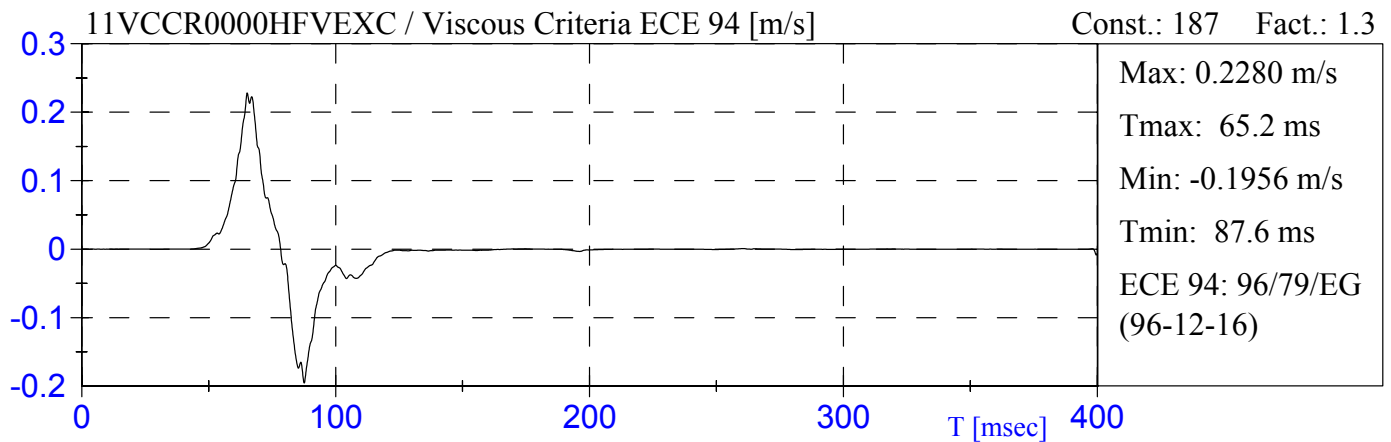
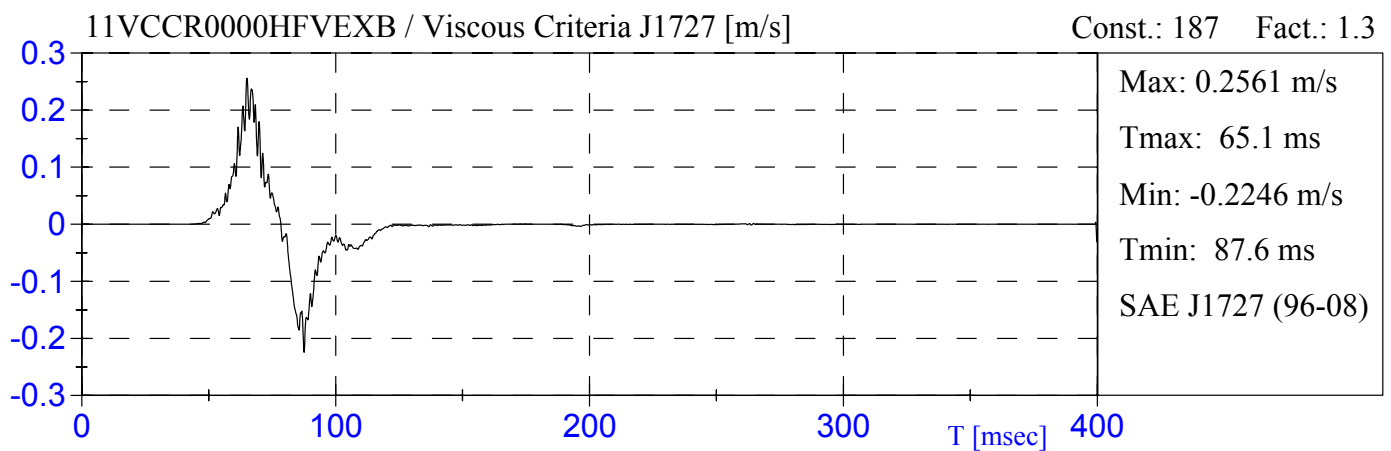
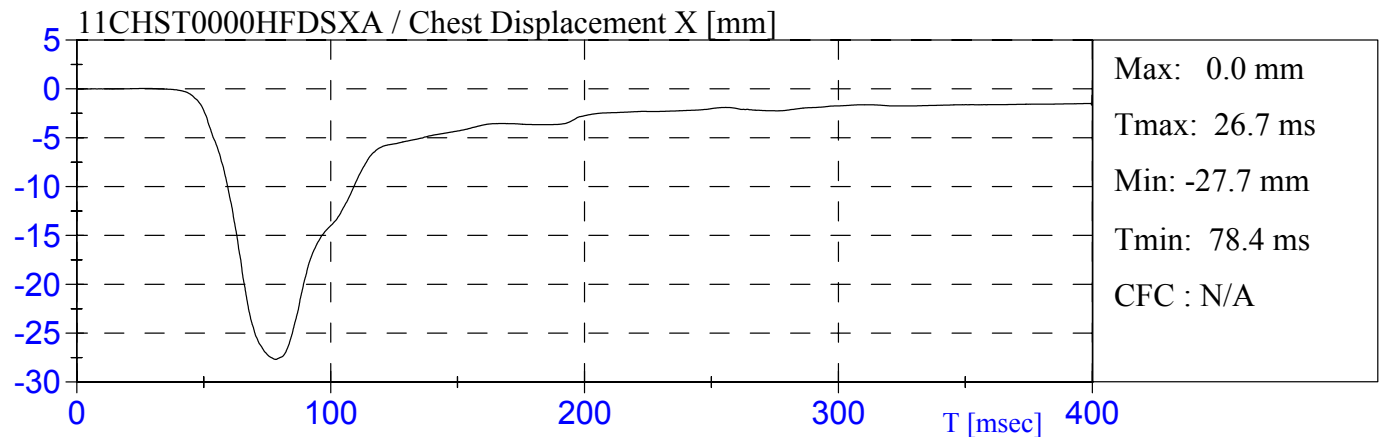
Neck Injury Criteria: 16NIJCIP000000YX

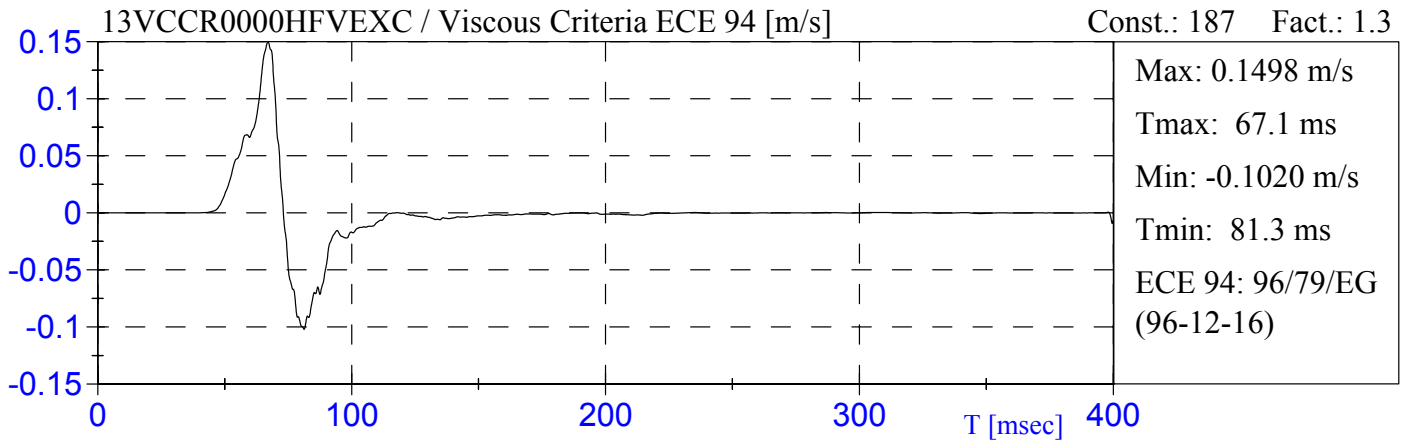
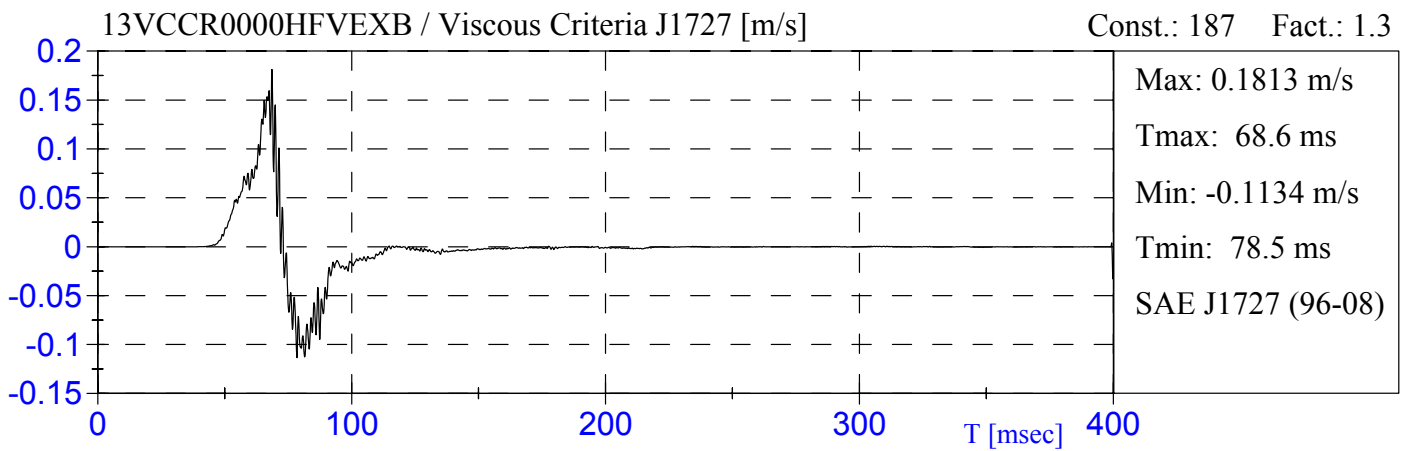
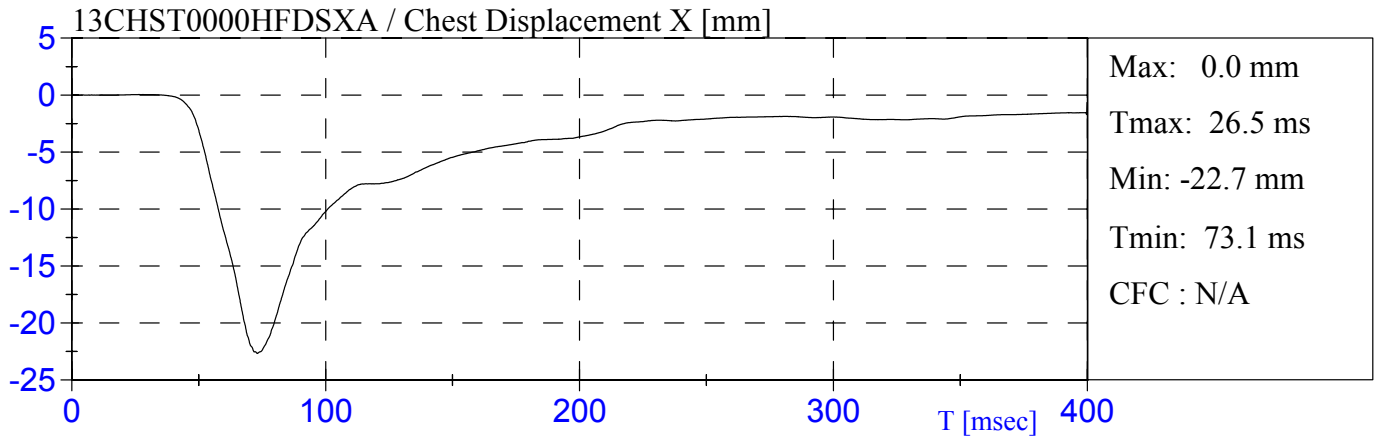
$N_{ij}^* = 0.87$

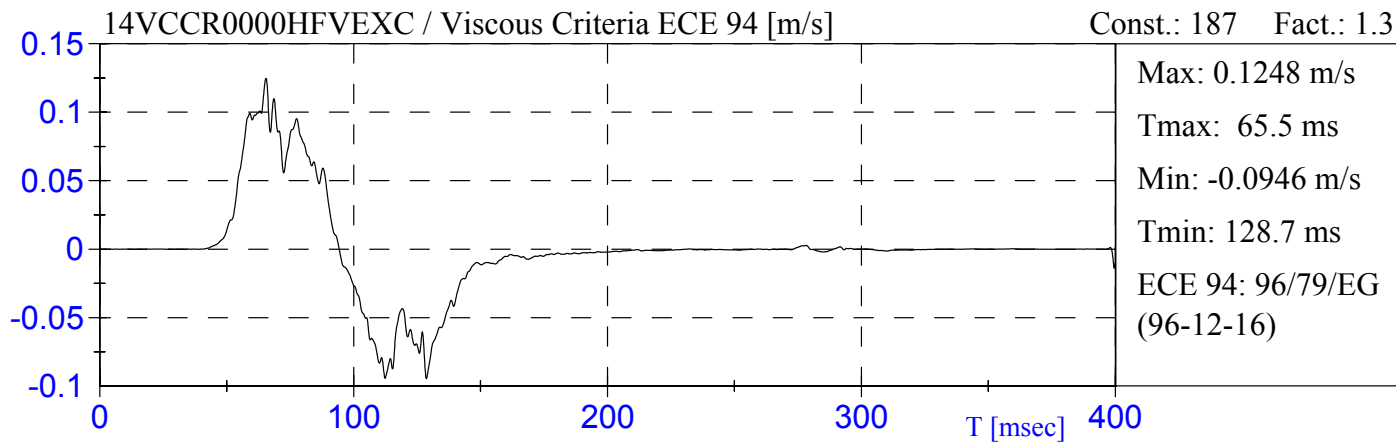
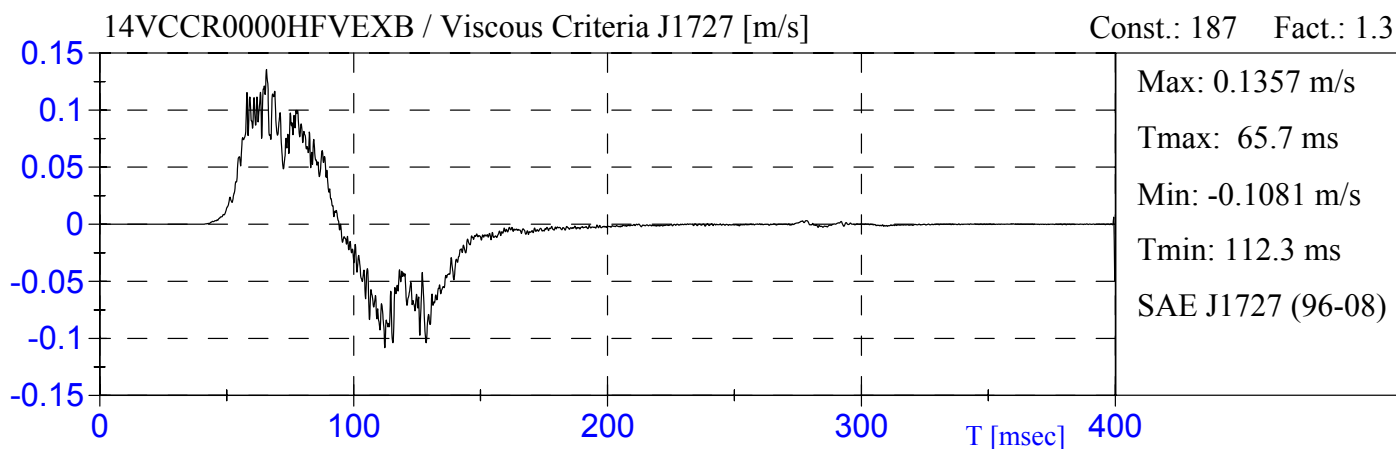
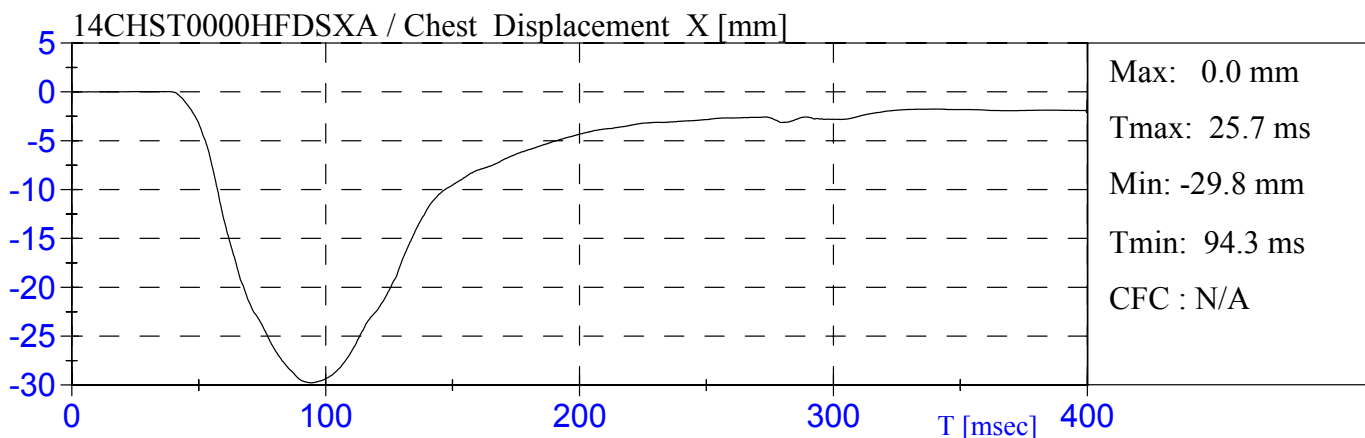
Valeurs critiques
Criticals Values

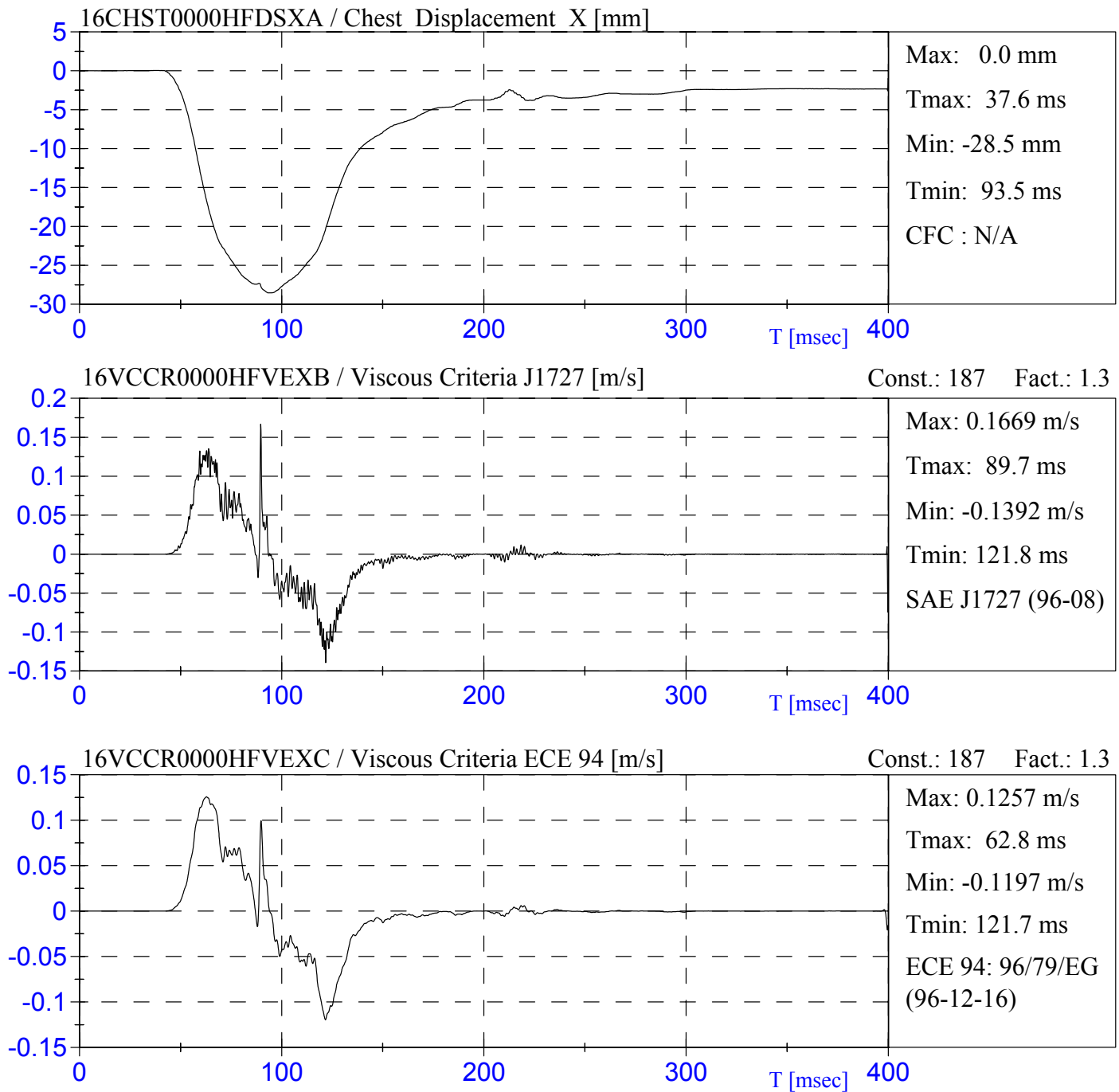
N tf	N te	Ncf	N ce	Tc	4287
				Cc	3880
0.72	0.67	0.10	0.87	Fc	155
				Ec	67

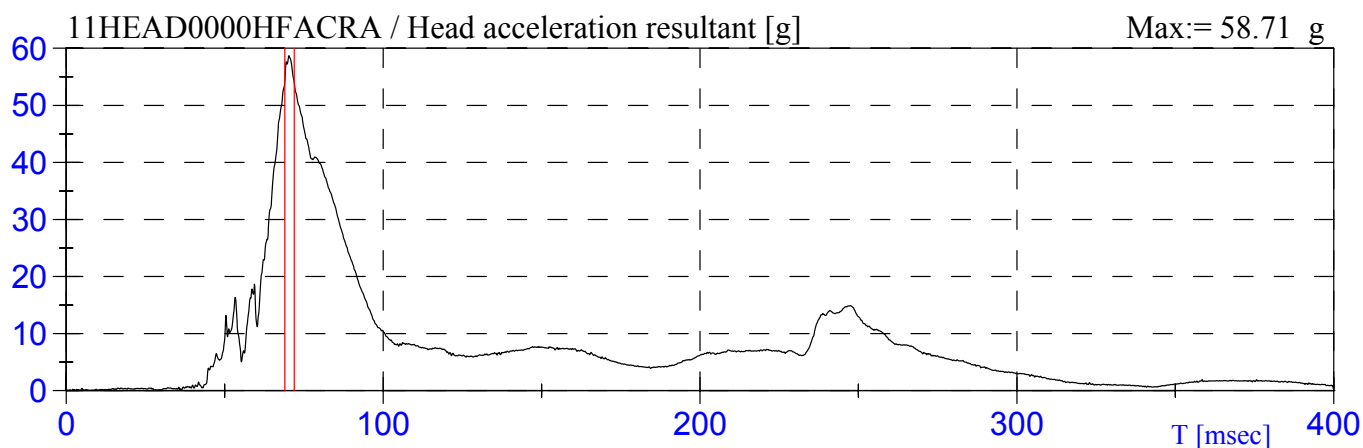
* Selon / According To: Federal Register 5/2000





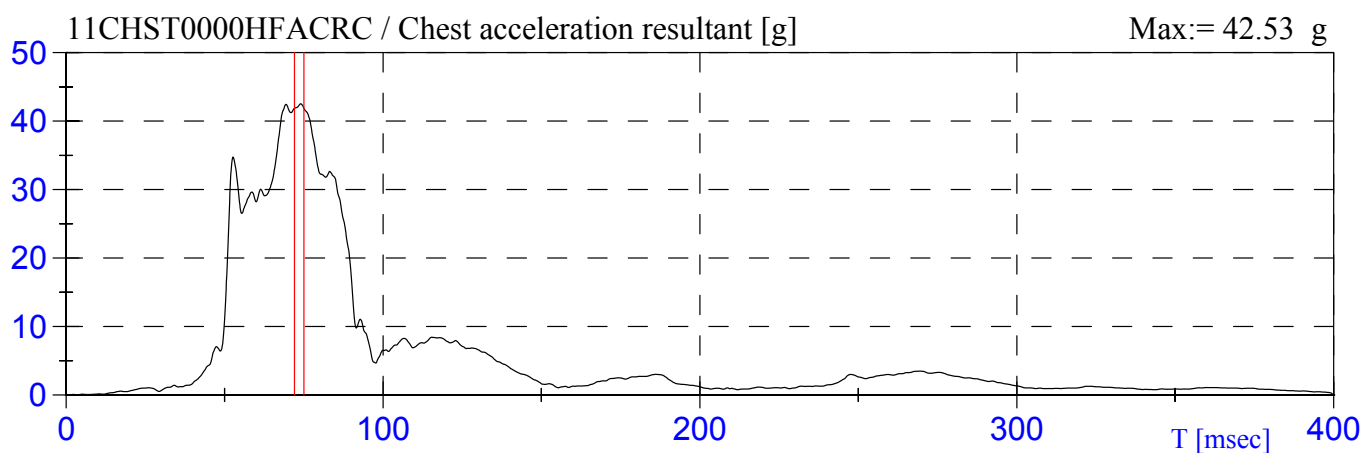






CLIP 3ms *

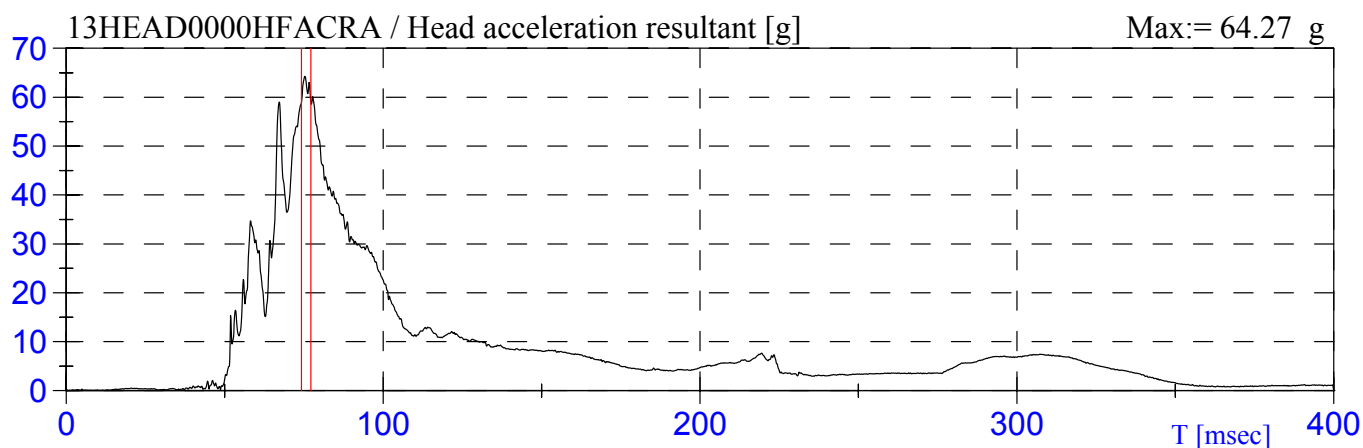
Acc. := 54.05 g	T1:= 68.9 ms	T2:= 71.9 ms
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CLIP 3ms *

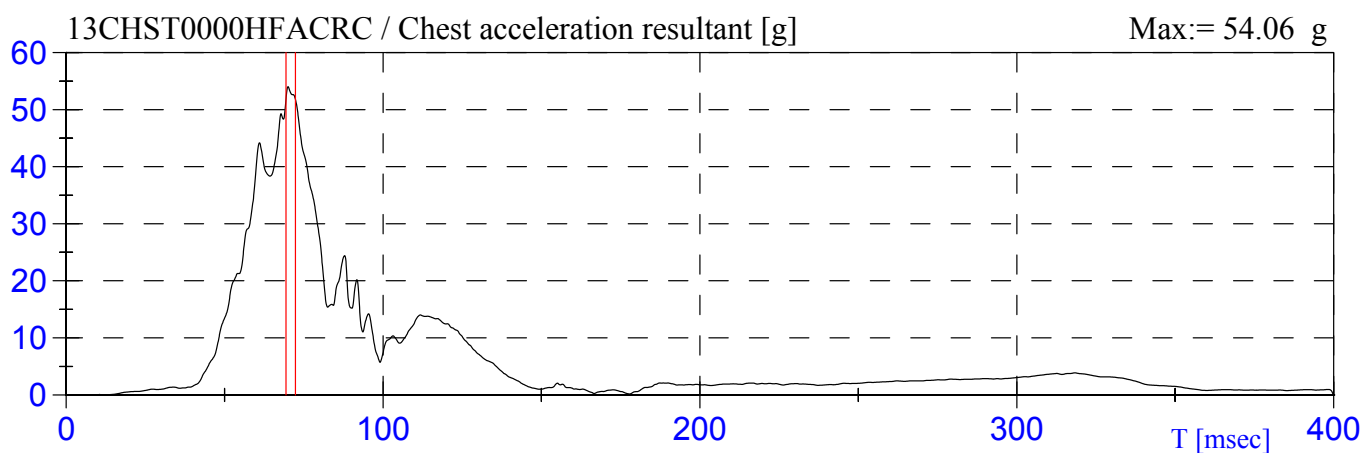
Acc. := 41.88 g	T1:= 72.0 ms	T2:= 75.0 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms *

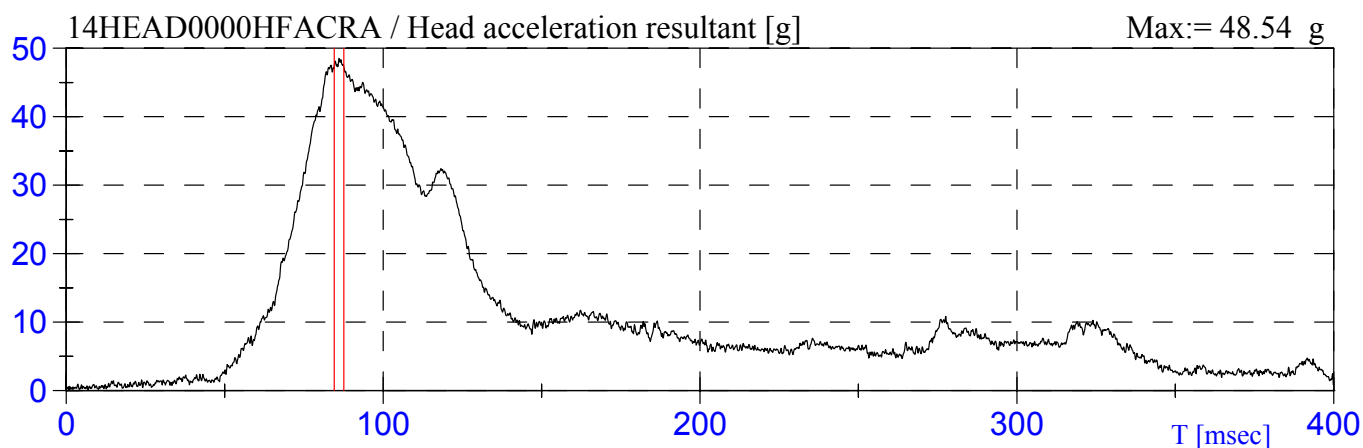
Acc. := 58.94 g	T1:= 74.2 ms	T2:= 77.2 ms
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CLIP 3ms *

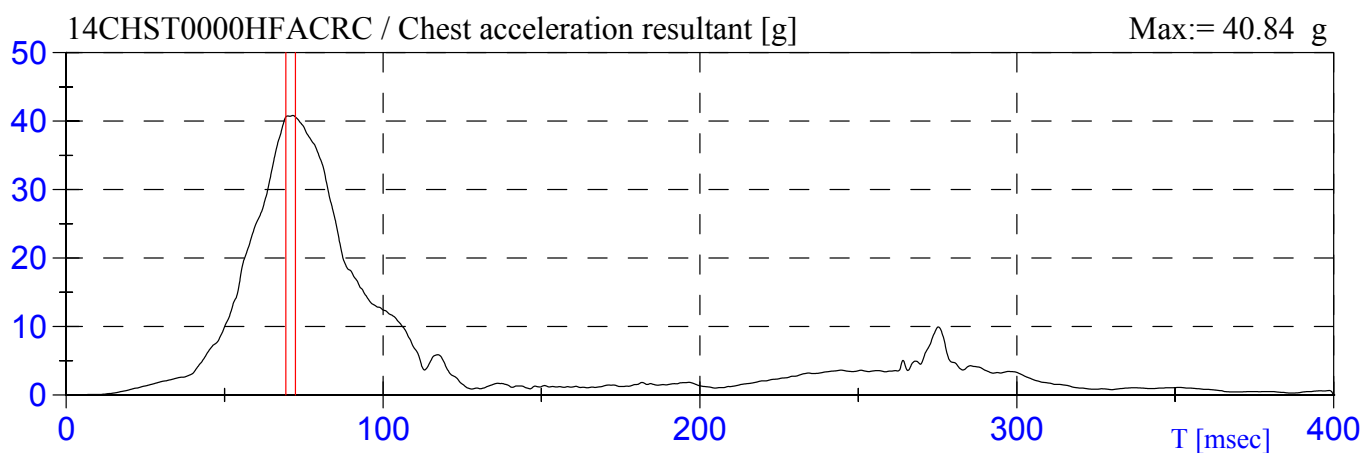
Acc. := 51.83 g	T1:= 69.4 ms	T2:= 72.4 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms *

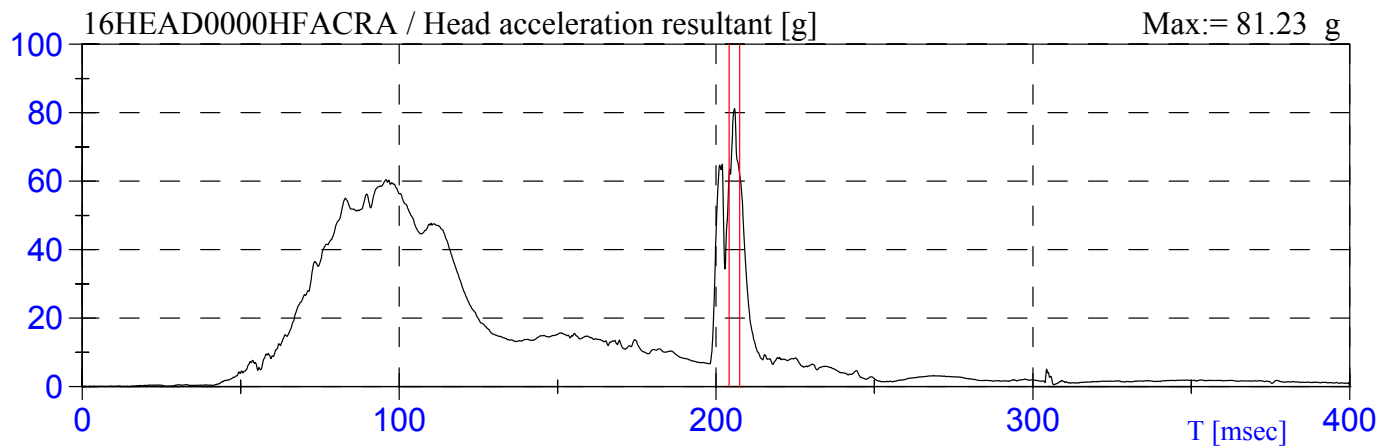
Acc. := 47.31 g	T1:= 84.6 ms	T2:= 87.6 ms
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CLIP 3ms *

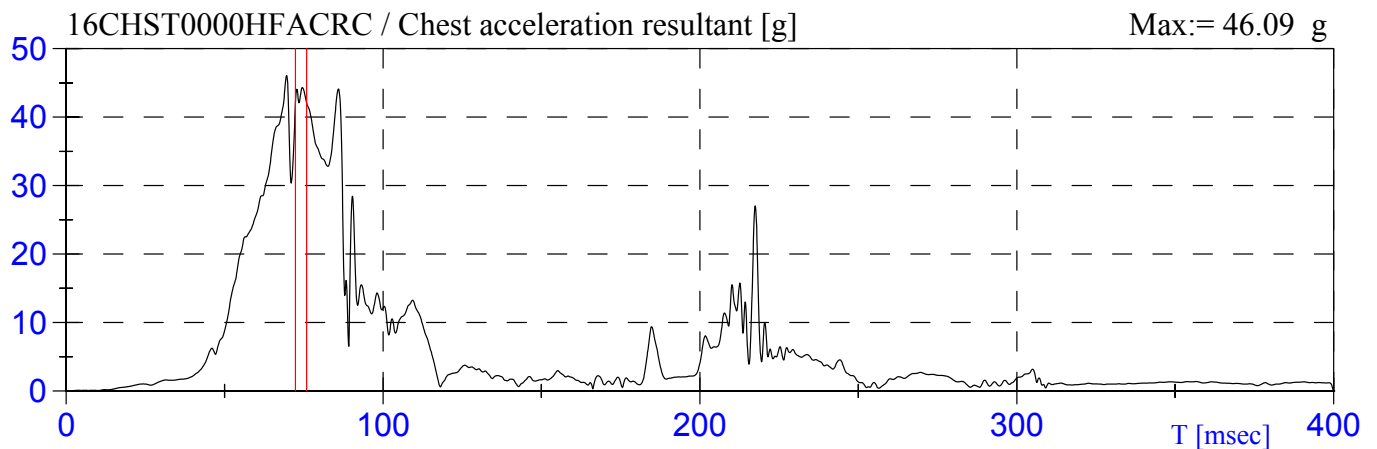
Acc. := 40.61 g	T1:= 69.4 ms	T2:= 72.4 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms *

Acc. := 62.01 g	T1:= 204.2 ms	T2:= 207.5 ms
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CLIP 3ms *

Acc. := 42.09 g	T1:= 72.4 ms	T2:= 75.9 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95

COMMENTAIRES / COMMENTS

13NECKUP00HFFOZA: N'est pas valide à partir de 53.3 ms.
Is not valid from 53.3 ms.

13TIBIRILOHFFOZB: Transitoire réparé de 85.3 ms à 86.3 ms.
Glitch removed from 85.3 ms to 86.3 ms.

APPENDICE /APPENDIX C

**DONNÉES DES TEMPÉRATURES
TEMPERATURE DATA**

Temperature TC05-244

